COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

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Unemployment in Coal

DRAMATIC indeed was the setting that had been staged for the delegates to the conference on unemployment at Washington. Opened by the President of the United States, presided over and under the leadership of Herbert Hoover, the conferees have found every possible stone removed from their path in the pursuit of their objective—emergency and then permanent measures to relieve the plague of idleness. The great things that such a gathering of citizens of the highest type, under such auspices, could hope to accomplish are not finding jobs for the unemployed but awakening the national consciousness to the magnitude of the problem and setting every one, from lowly village mayor to highest executive in industry, to the task. The problem is so big, so elusive and so impossible of direct solution that everyone must admire the courage and vision as well as the faith in the ultimate good sense and resourcefulness of the American people of the men who dared make the undertaking.

Unemployment and employment are relative terms. At no time is everyone at work. Demand for materials and goods creates demand for labor and diminishes idleness; a depression in business closes the avenues of employment. Hence there is no panacea for the great ailment of the world today except to resuscitate buying. In other words, the problem of unemployment is primarily a matter of commerce and not one of labor—hence we find the Secretary of Commerce, Mr. Hoover, and not the Secretary of Labor, Mr. Davis, the leader of the national conference on unemployment at Washington.

Coal bulks large in the problem, for two reasons: A large part of the idle men the country would put to work are at the coal mines and the high price of coal is held to be a contributing cause in the hesitation of other business to resume and to employ more men.

Unemployment in the coal industry cannot be entirely charged to the obstinate policy of the United Mine Workers in refusing even to consider a reduction in wages, because a fair-sized and growing portion of mine labor is non-union and has accepted lower wages and is working. The conference in Washington has concluded its preliminary canvass of the situation, but the committee on mining will not report until Oct. 10. There is no intimation as this is written as to the angle the conclusions of these men, representative of the coal industry, will take.

They must, however, have taken cognizance of the accepted fact that the union coal miners, with the building trades labor, have refused wage reductions and that railroad labor has been reduced but a small portion of what must come if high freight rates are no longer to bar the revival of business. It must also have come to their attention that in the anthracite region, with wages the highest in history and coal prices at the highest recorded level, labor has been as fully employed this year as in any normal year.

This has been true because the operators have been willing to produce and store what they could not sell and the retail dealers have been willing to buy and store what they could not induce customers to put in their cellars. The miners in the anthracite region have not been given work at better than war-time wages because they were entitled to such wages by the high cost of living but because the country must have the coal. Public condemnation of hard-coal prices has been continuous and strenuous. But there has been no unemployment problem in the hard-coal region.

Bituminous Coal a Special Problem

WITH soft coal the case is different. Unemployment has been rife since early in the year and the prospect for more work is not promising. The bituminous industry, therefore, presents a special problem to the conferees on unemployment. As we noted in these columns two weeks ago, out of the maximum of 640,000 employed in 1920, some 150,000 men are now idle or at least are not mining bituminous coal. Of those at work the portion afforded the opportunity for full-time employment is reduced from last year by one-half and the percentage of opportunity to work three days or more has dwindled on the average from 60 to 42.

Mine labor does not generally fully avail itself of its opportunity to work. From 60 to 75 per cent is a fair average of the number of men who work three-fourths or more of the hours in which they have the opportunity to labor, according to extensive studies made by the Bureau of Coal Economics of the National Coal Association and introduced as evidence before the Bituminous Coal Commission in 1920. This appears to be true whether the opportunity to work, as represented by days of mine operation per month, is 10 or 20 and is a condition in the industry that cannot be classed as unemployment.

But aside from the habits of work and non-work of the individual miner in good times and bad and its effect on the apparent unemployment of this class of labor is the fact that the year 1921 inherited some 640,000 to mine soft coal and work has been available, either part or whole time, for only 500,000. To what extent has high cost of coal necessitated by high union wages militated against the greater employment of these men? Is the price of coal for industry holding back the tide of prosperity? There can be but one answer. The cost of coal is a factor contributing to the hesitation of industry, but to a lesser degree than many suppose. Non-union mine operators have reduced wages and the buyers of coal have been getting the advantage of lower costs in cheaper coal. The average

price of smokeless coal, the best steam coal this country produces, was $1.30 per net ton in the twelve months prior to July, 1914. The navy has just closed a large contract for smokeless coal at $1.92 per net ton, an increase over the pre-war figure of 62c., or less than 50 per cent. Wages have been materially reduced at the mines where this coal is produced.

Somerset (Pa.) coal is now to be had at $2 per net ton, compared with $1.30 before the war. Wages of non-union miners have been reduced here. Eastern Kentucky (a non-union field) mine-run coal is now quoted at $1.60 per net ton, compared with a pre-war average of $1.52 per ton.

Turning to the union fields, however, we find Clearfield now $2.20 per ton, about double the pre-war price of $1.12; Pittsburgh steam coal at $2.25 against the 1913-1914 average of $1.26; Kanawha now $2.25 compared with $1.16 and southern Illinois mine-run from $2.25 to $3.50 compared with a pre-war average of $1.16. Connellsville, the home of beehive coke, is now a coal producer and with wages nearly to pre-war levels and with coke ovens idle is finding a wide market for coal.

Comparative figures of operating time in the coal region as published by the Geological Survey show that it is the union fields that are suffering the most. It is reported that one of the emergency measures that will be proposed for unemployment will be to divide up what work there is. The union miners cannot share more generously in the labor there is until they accept a lower wage. There is no other answer to the unemployment problem for these men.

Non-union fields cannot, however, produce the coal that will be required for even a moderate revival in business. The responsibility of the coal industry in helping the country return to normal is great. Lower freight rates hinge in part on cheaper union coal and lower freight rates with more cheap coal and coke from coal are needed to give the iron and steel industry a feeling of stabilization. If, as now appears probable, the program of the United Mine Workers be to refuse consideration of wage changes until next spring and settlement then only to be affected after a strike, the solution of unemployment not only in coal but other industry will be interminably and inexcusably delayed, though the eventual outcome be assured.

A Revival in Cost Accounting

IN PROMOTING cost accounting at the coal mines the National Coal Association is again entering a field that is at once non-controversial and that is constructive. So much of the time, money and effort of the national association has been spent on the firing line that the everyday needs of the rank and file of the membership have suffered. In Cincinnati last week there were assembled some 100 coal operators, auditors and secretaries to spend the day in a discussion of uniform cost accounting, the first meeting of the kind in two years.

Teaching cost accounting for cost accounting's sake alone is unproductive. The subject is intricate, the details many, and one soon tires. But to teach cost accounting and the collection of field costs as a means to an end can produce good. And if that end be the illumination of the facts of the industry there is opportunity to arouse some enthusiasm on the subject. For instance, between now and the signing of a new wage scale with the United Mine Workers there will be occasion for the operators to go before the people of the country with their side of the story. The next, as was the last, wage negotiation will be fought over in the press, and cost data will be invaluable in that contest.

There should, however, be no such impelling reason required to induce every coal operator to adopt and follow a uniform cost accounting system. Not all the experts will agree that the system of the National Coal Association is perfect, but all can and do, it appears, agree that it is good and that it should be universally followed. That being true there remains the greater task of getting it introduced. Here again the national body, by holding sectional meeting and by energetic teaching, can be of great help to the local organizations.

The New Connellsville Region

A BEEHIVE-OVEN region has its peculiarities. It does not seek to obtain maximum coal tonnage unless it is selling raw coal. When it sells its coal uncoked it misuses the product which is needed to get service out of the ovens. As the ovens cost more than the mine and the number of ovens has been so regulated as to use the coal of the field apportioned to it during their life, it would not do to rob them of the coal. Hence, in a beehive-oven region raw coal is not sold. When enough coal is mined to fill the ovens that are ready to be filled the mine is closed down till another batch of ovens becomes ready.

For this reason the Connellsville region has not kept pace with some other localities in the matter of coal output per plant. The original installations were laid out with their restrictions in full view. Now, with the departure of the beehive oven, a new day has arrived. It no longer matters what mine produces the coal, as it is not coked at the mine. However, it ceases to be desirable to operate as many plants as in the past. One big mine would seem more economical than several smaller ones if the coal is to be shipped. A consolidation of mining areas now seems probable, and nothing will hamper the largest of development except the fact that the region is already quite generally despoiled of its coal, and virgin tracts are no more.

There is still room for concentration in some places, however. We are learning from time to time that proposals for larger plants are under way, and the Connellsville region, the home of an enforced conservatism, may yet show the stuff out of which its engineers are made. The region has been in the past a leader in social experiments and coal conservation. From now on it may exhibit once again its pre-eminence in transportation and hoisting methods. It will be well worth watching. The subsidiaries of the United States Steel Corporation have given proof of their mining enterprise in Gary, Westville, Benton and Lynch. They will hardly be less active under the new conditions in Fayette and Westmoreland counties. The promise of a marvelous rubber-belt conveyor, miles in length, seems to be a forerunner of such activity.

The beehive and Belgian ovens have not by any means shipped their last ton of coke. They may have their periods of revival but faith in them is so greatly shaken that no longer will it be desirable to conserve coal for their operation, so irregular is that operation likely to be and so sure is it that before long the last day of the last beehive oven will be celebrated. For this reason we may look for an increase of coal production in the Connellsville region, not all of which will by any means go into byproduct coke.

Improved Rolls, Feeders and Chutes Greatly Reduce Degradation in Anthracite Breakers*

Performance and Design of Rolls—Feeders Which Give Even Flow of Coal—Chutes with Irregular Delivery—Box and Other Automatic Chutes—Screen Areas for Coal of Different Sizes

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Upon the kind of rolls used in the preparation of anthracite and how they are operated depends in large measure the quantity of prepared sizes that can be obtained. Any excess production of the smaller sizes reduces the profit realized from the operation of a mine. Many types of rolls are now on the open market, and there are others which the coal companies have designed for their own use. A roll should crush or, rather, break the coal of a given larger size to a given smaller one, producing, in so doing, a minimum of over- or under-sizes. All roll tests show the percentages of the prepared sizes of coal together with those of the unprepared sizes (if indeed today any sizes may be regarded as unprepared). It is more correct to call these small coals steam fuels than unprepared sizes, for in many places the smaller grades receive as careful preparation as the larger ones.

About Ten per Cent Loss in Each Breakage

The accompanying set of curves, Fig. 1, were made from data obtained in a long series of tests by the Lehigh & Wilkes-Barre Coal Co. The rolls upon which these trials were made are of a special design worked out in this firm's own mechanical engineering department and are particularly suited to its conditions. It will be noted from the line marked "Steamboat" that the quantity of prepared sizes made in breaking coal from lump to steamboat is 93.4 per cent. In breaking steamboat to broken it is 91 per cent and in breaking broken to egg it is 88.8 per cent.

Table I shows a long series of roll tests made in different parts of the anthracite fields. Here is given the name or make of the roll, the locality where the test was made and the results obtained, also any special feature which the roll may embody.

In this table mention is made of the Johnson hollow-ground tooth. This element of roll design differs from the old-style spear tooth in that it has four cutting edges spaced equidistantly around its periphery, as shown in Fig. 2. Here also is shown the old type of spear tooth. In Fig. 3 will be found the "hawk-bill" tooth, which is composed of manganese steel. In Fig. 4 is shown an older type of tooth, which also is made from manganese steel.

In the Johnson tooth the areas between the four cutting edges, which converge to a point, are concaved to a depth of $\frac{1}{4}$ in., allowing the edges to stand out prominently. This constitutes the distinctive characteristic of this tooth, in that the only part of it which comes in contact with the coal is the cutting edge, whereas with the older types, possessing only two cutting edges, the sides of the tooth present an unbroken surface to the coal. This has resulted in a grinding instead of a cutting action. It also is asserted that the wear on this type of tooth is such that the cutting edge is maintained through the entire length of its period of service.

Referring to Table I it will be noted that tests 26 and 27 were made with Johnson teeth and that the percentage of the prepared sizes obtained exceeds that shown in tests 24 and 25, made at the same colliery with the other type of tooth. Furthermore the percentage of the larger sizes of coal are greater for the Johnson teeth than for those of other types.

Tests 30 and 31 of the same table show that with no steamboat in the second test and a smaller percentage of broken coal, the proportion of prepared sizes was greater than in the first trial.

In test 35 it will be seen that the Johnson tooth made practically no broken coal, yet the percentage of prepared sizes was greater than in test 34 when 36.4 per cent of broken coal was produced.

Probably the greatest recent departure from ordinary roll construction is the new roll invented by Frank Pardee and now in daily service in the Colerain breaker. This is not really a roll but it does the work of one. Referring to Figs. 5 and 6 it will be noted that the machine consists of two shafts revolved toward each other by means of gearing. On one shaft is mounted a steel plate carrying cutter teeth on its periphery. These are similar to the teeth on a circular saw, but the distance between the adjacent cutters is equal to about the diameter of the pieces to which it is desired to break the coal. Thus an egg crusher would have teeth $2\frac{3}{8}$ in. apart.

On the other shaft are plain steel disks. The cutter and the disks revolve in the same plane, their tops moving toward each other. The coal is fed to this device

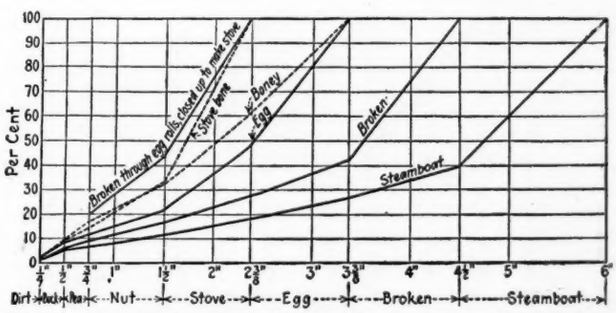

FIG. 1. GRAPH OF PERFORMANCE OF ROLLS AT LEHIGH & WILKES-BARRE COLLIERIES

Each line in the graph is denominated by the size desired. Thus the line marked "steamboat" shows the quantity of each prepared size obtained when 100 per cent lump is reduced to steamboat. It will be noted that in crushing, the aggregate percentage of sizes rated as pea and under is about 6.6; hence the total percentage of prepared sizes is 93.4. The line marked "broken" shows the prepared and "unprepared" sizes resulting from the breaking of 100 per cent steamboat to broken.

*Excerpt from article, entitled "Preparation of Anthracite," presented at the Wilkes-Barre meeting of the American Institute of Mining and Metallurgical Engineers.

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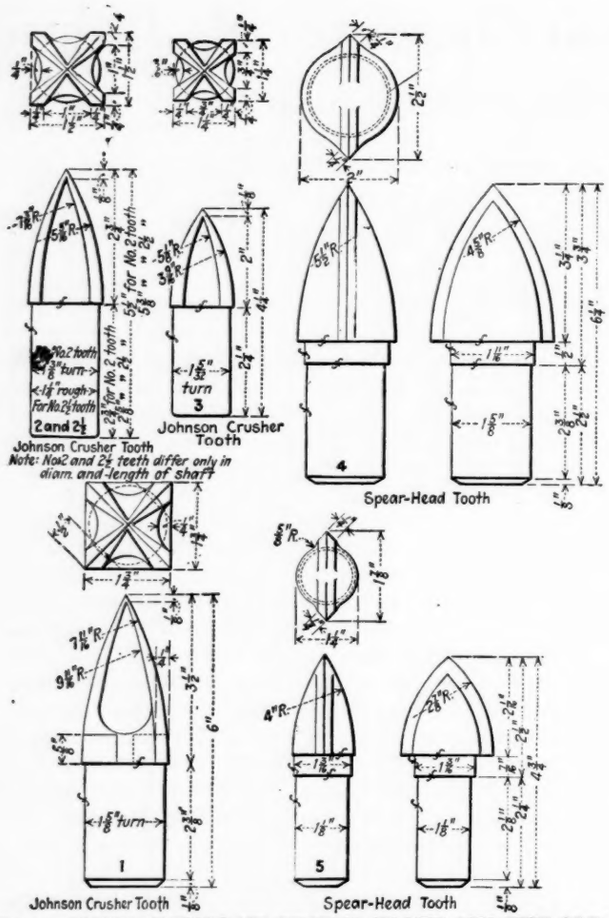

Johnson Crusher Tooth
Note: No2 and 2½ teeth differ only in diam. and length of shaft
Johnson Crusher Tooth
Spear-Head Tooth
Johnson Crusher Tooth
Spear-Head Tooth

FIG. 2. JOHNSON HOLLOW-GROUND TOOTH AND THE OLD-FASHIONED SPEAR-HEAD TOOTH

The letter "f" appearing in many parts of the illustration designates that the part thus characterized is tool-finished. It will be noted that the purpose of the roll is to break, not crush, the coal.

by a new and ingenious spiral feeder in such a manner that each piece of coal is delivered with its major axis at right angles to the plane in which the cutters revolve.

The feeder and the cutter are synchronized, so that each piece of coal is delivered in front of a tooth, which carries the coal forward and against the opposite disk. This acts as a fulcrum, against which the cutter breaks the coal. Between adjacent cutters as well as between the disk wheels is placed a spring spacer. Any coal that lodges between either the cutters or the disks will push the spring back, thus preventing the coal from being crushed.

Table II is the result of a test that was run on one of these rolls.

TABLE II. TEST OF PARDEE ROLLS

	Per Ct.		Per Ct.
Over 1½ in. and through 2 5/16 in.	71.42	Over ½ in.	2.38
		Over ¼ in.	2.85
Over ⅜ in. and through 1½ in.	21.42	Over 3/16 in	0.48
		Over 1/16 in.	1.07
		Smaller	0.48

It is interesting to note that the material was crushed directly from broken into egg coal without any oversize, giving a total of 92.84 per cent of prepared sizes. With the common roll it is generally expected that the highest yield of prepared coal will occur when 15 to 20 per cent of oversize is made by the roll.

Little need be said as to the design of shaker screens, as these have become so nearly standardized that few improvements have been made during the past several years. Commencing with page 277, Vol. 42, Transactions American Institute of Mining and Metallurgical Engineers, Paul Sterling describes fully the revolving and the shaker screen. What Mr. Sterling has already discussed will not be considered here but a few details of current practice at certain breakers will be recorded.

In the new Wanamie breaker of the Lehigh & Wilkes-Barre Coal Co., the areas in square feet of screening surface per hour allowed for one ton of coal were fixed as in Table III.

TABLE III. SCREEN AREAS ALLOWED AT WANAMIE BREAKER PER TON-HOUR

	Sq.Ft.		Sq.Ft.
Broken	2.4	Pea	6.4
Egg	1.9	No. 1 Buckwheat	4.2
Stove	2.3	Rice	6.9
Chestnut	2.3	Barley	7.8

TABLE I. RESULTS OF ROLL TESTS AT VARIOUS BREAKERS

Name of Colliery	Name of Make of Rolls	Size	Special Characteristics	Size of Coal Crushed	Speed, Ft. per Min.	R.p.m.	Date	Steamboat, per Cent	Broken, per Cent	Egg, per Cent	Stove, per Cent	Chestnut, per Cent	Prepared Sizes, per Cent	Pea, per Cent	Buckwheat, No. 1, per Cent	Rice, per Cent	Barley, per Cent	Buckwheat No. 4, per Cent	Total Small Sizes, per Cent	Number of Teeth per Shell	Condition Teeth	Test	Remarks
Short Mountain	Solid cast	No. 2	Teeth diagonal and alternate	Broken	918	115	1910	....	....	47.5	21.0	13.5	82.0	6.0	5.5	3.5	1.75	1.25	18.0	896	Fair	1	
Williamstown	Manganese	No. 2	Teeth Alternate	Broken	....	80	1911	....	1.3	37.3	27.7	16.2	82.5	5.0	6.0	3.6	1.2	1.7	17.5	840	Good	2	
Williamstown	Manganese	No. 2	Teeth alternate	Broken	....	80	1911	....	9.0	39.5	22.9	13.2	84.6	4.5	4.6	3.0	1.5	1.8	15.4	840	Good	3	
Williamstown	Manganese	No. 2	Teeth removed	Broken	....	80	1911	....	7.0	39.4	22.8	14.8	84.0	5.0	4.5	3.3	1.7	1.5	16.0	840	Good	4	
Williamstown	Manganese	No. 2	Each sheet	Broken	....	80	1911	....	3.8	40.0	23.0	14.9	81.7	5.9	5.6	3.7	1.4	1.7	18.3	840	Good	5	
Wm. Penn	Manganese	No. 2	.....	Steamboat	301	....	1920	....	43.0	21.0	12.5	9.0	85.5	6.0	3.5	4.0	1.0	....	14.5	....	.....	6	
Cameron	Manganese	No. 2	.....	Steamboat	256	....	1920	12.5	38.8	12.5	13.7	9.2	86.7	4.2	4.3	2.0	2.5	1.3	13.3	....	.....	7	
Luke Fidler	Manganese	No. 2	.....	Steamboat	233	....	1920	2.9	26.2	18.0	18.4	16.0	81.5	6.8	4.9	3.4	2.4	1.0	18.5	....	.....	8	
Slott	Manganese	No. 2	.....	Steamboat	364	....	1920	....	42.7	19.0	12.7	11.7	86.1	4.7	4.2	2.6	1.5	0.9	13.9	....	.....	9	
Pennsylvania	Manganese	No. 2	.....	Steamboat	345	....	1920	....	29.0	35.0	21.0	11.2	96.2	2.5	1.2	0.5	0.3	0.3	3.8	....	.....	10	
Wm. Penn	Manganese	No. 1	.....	Lump	905	....	1920	51.0	21.0	8.5	6.0	4.8	90.3	3.0	3.2	3.0	0.5	....	9.7	....	.....	11	
Cameron	Manganese	No. 1	.....	Lump	250	....	1920	64.5	6.5	4.5	7.8	6.0	89.3	3.5	3.7	1.0	1.5	1.0	10.7	....	.....	12	
Luke Fidler	Manganese	No. 1	.....	Lump	1,107	....	1920	38.1	16.7	12.4	9.5	10.0	86.7	6.0	3.3	1.9	1.4	0.7	13.3	....	.....	13	
Scott	Manganese	No. 1	.....	Lump	1,008	....	1920	30.0	21.9	14.7	11.7	10.0	88.3	4.2	3.7	2.1	1.1	0.6	11.7	....	.....	14	
Pennsylvania	Manganese	No. 1	.....	Lump	240	....	1920	36.0	20.5	15.3	11.3	10.0	93.0	3.0	2.5	0.8	0.5	0.2	7.0	....	.....	15	
Richards	Manganese	No. 1	.....	Lump	288	....	1920	43.3	17.8	12.3	8.1	6.3	87.8	4.3	2.7	2.3	1.8	1.1	12.2	....	.....	16	
Cameron	Manganese	No. 3	.....	Broken	246	....	1920	....	15.3	38.7	18.0	15.8	87.8	4.5	2.2	3.0	1.5	1.0	12.2	....	.....	17	
Luke Fidler	Manganese	No. 3	.....	Broken	281	....	1920	....	5.0	26.0	33.0	23.0	87.0	5.0	2.5	2.5	1.5	1.5	13.0	....	.....	18	
Richards	Manganese	No. 3	.....	Broken	289	....	1920	....	35.0	27.7	15.6	11.1	89.4	3.8	2.8	1.9	1.4	0.7	10.6	....	.....	19	
Jeddo No. 4	Lloyd	No. 2	.....	Steamboat and broken	....	135	....	....	....	52.0	28.0	10.0	99.0	3.0	3.0	2.0	1.0	1.0	10.0	....	.....	20	10 tests average
Jeddo No. 4	Lloyd	No. 1	.....	Lump	....	135	....	38.0	20.0	19.0	8.0	6.0	91.0	3.0	2.0	2.0	1.0	1.0	9.0	....	.....	21	7 tests average
Highland No. 5	Lloyd	No. 1	.....	Lump	....	135	....	41.8	29.0	20.0	4.5	2.0	97.3	1.0	0.7	0.7	....	0.3	2.7	....	.....	22	
Highland No. 5	Lloyd	No. 2	.....	Steamboat and broken	....	135	....	....	....	63.4	19.2	9.6	92.2	2.8	2.0	1.7	1.0	0.3	7.8	....	.....	23	
Lansford No. 5	Lloyd	No. 1	.....	Lump	....	135	1920	41.4	19.8	11.1	8.2	8.3	88.8	3.6	...	7.6	....	....	11.8	....	.....	24	
Lansford No. 5	Lloyd	No. 1	.....	Lump	....	135	1920	30.5	24.0	15.5	9.2	10.1	89.3	3.8	...	6.9	....	....	10.7	....	.....	25	
Lansford No. 5	Lloyd	No. 1	Johnson	Lump	....	135	1920	45.1	23.6	7.6	7.9	8.6	92.8	2.6	...	4.6	....	....	7.2	....	.....	26	
Lansford No. 5	Lloyd.	....	Johnson	Lump	....	135	1920	46.1	22.5	9.6	4.9	7.3	90.5	3.4	...	6.1	....	....	9.5	....	.....	27	
Lansford No. 6	Lloyd	No. 2	.....	Steamboat	....	135	1920	9.6	38.7	20.9	10.6	9.3	89.1	3.8	...	7.1	....	....	10.9	....	.....	28	
Lansford No. 6	Lloyd	No. 2	.....	Steamboat	....	135	1920	0.6	43.6	27.4	9.8	8.7	90.1	3.4	...	6.5	....	....	9.9	....	.....	29	
Rahn No. 11	Manganese	No. 2	.....	Steamboat	....	135	1920	21.0	35.4	16.6	8.6	7.2	88.8	4.0	...	7.2	....	....	11.2	....	.....	30	
Rahn No. 11	Manganese	No. 2	Johnson	Broken	....	135	1920	....	26.0	39.0	15.3	10.6	90.9	3.9	...	5.2	....	....	9.1	....	.....	31	
Rahn No. 11	Manganese	No. 2	.....	Steamboat	....	135	1920	....	4.4	37.2	28.3	16.2	86.1	3.5	...	10.4	....	....	13.9	....	.....	32	
Rahn No. 11	Manganese	No. 2	Johnson	Steamboat	....	135	1920	....	5.9	51.8	20.5	11.0	89.2	3.8	...	7.0	....	....	10.8	....	.....	33	
Tamaqua No. 14	Lloyd	No. 2	Johnson	Steamboat	....	135	1920	....	36.4	32.8	11.5	8.9	89.6	3.5	...	6.9	....	....	10.4	....	.....	34	
Tamaqua No. 14	Lloyd	No. 2	Johnson	Steamboat	....	135	1920	....	0.5	54.8	22.8	12.0	90.1	4.1	...	5.8	....	....	9.9	....	.....	35	

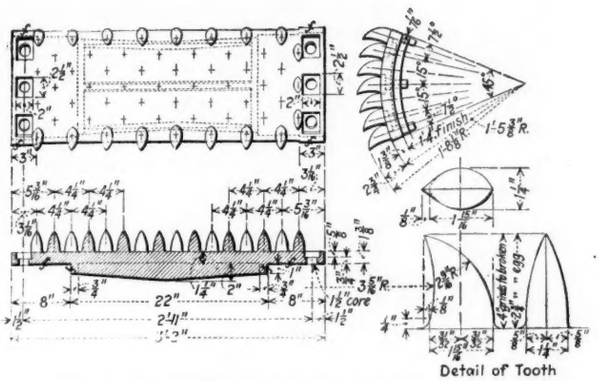


FIG. 3. HAWK-BILL TOOTH AND ITS SETTING
This form of tooth is extensively used in the anthracite region for breaking down coal.

These large screen areas are provided because, for a short period in the morning, the tonnage is unusually heavy and if there were not sufficient screen area it would be impossible to handle the coal and screen it properly.

The Susquehanna Collieries Co. uses different multiples for screen areas per ton capacity per hour. These are recorded in Table IV.

TABLE IV. SCREEN AREAS PROVIDED BY SUSQUEHANNA COLLIERIES CO. PER TON-HOUR

	Sq.Ft.		Sq.Ft.
Egg	0.75	No. 1 Buckwheat	1.50
Stove	0.75	Rice	1.75
Chestnut	0.875	Barley	2.00
Pea	1.25		

In the first table both the broken and egg coal are screened dry and in the second the egg only. The other sizes are screened wet.

When the breaker begins operations in the morning there is, under ordinary conditions of mining, an abundance of coal which possibly has been produced by the night shift or which may have been left over from the preceding day. This means that during the first few working hours there possibly may be more coal than the breaker can handle properly. Later on the rate at which the coal arrives decreases, and consequently the breaker may not receive its capacity supply. At times during the day the coal may come in spurts or unsteadily, so that at one moment the preparation equipment may be overtaxed though a few moments later it may not have sufficient coal to operate properly.

To meet these abnormal conditions the breaker may be made of so large a capacity that no matter how rapidly the coal is brought to it it will be handled without difficulty. This method is extremely expensive as it requires the construction and equipment of a building far beyond the average needs. Another and better method is to provide storage hoppers to bridge over the peaks. When this plan is adopted the breaker can be so designed that the cost of construction and operation may be reduced to a minimum. In most cases these hoppers are placed at the top of the breaker. They may be so located, however, that both the coal passing through the bull shakers and that leaving the main rolls goes to the hopper. In addition to this storage many companies have arranged storage pockets in front of, and feeding, the jigs. If the coal comes too rapidly for the jigs to handle it, the coal is placed in these storage pockets, so that it may be fed evenly.

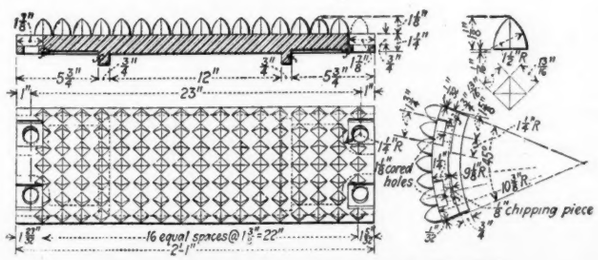


FIG. 4. OLD-FASHIONED SPEAR TOOTH
Illustration also shows how the teeth are arranged on the segments.

To accommodate a temporary excess of coal and assure its being fed properly from the hoppers or storage pockets to the breaker equipment, feeders are used. In some places these are operated by hand, the tender using his judgment as when to open or close the gates to the pockets. The more common method, however, is to employ an automatic feeder. This opens and closes the pocket gate at predetermined intervals and admits to treatment a certain quantity of coal at each opening. The number of openings and the quantity of coal admitted can be regulated to suit the conditions existing at the plant.

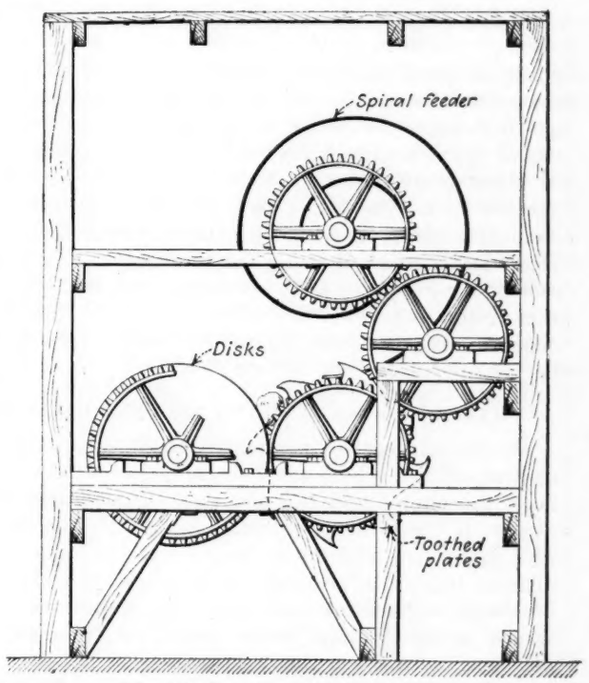


FIG. 5. NEW PARDEE ANTHRACITE FEED AND ROLLS
This is a radical departure from the present roll practice. The coal is fed to the teeth by a spiral feeder synchronized with the teeth of the rolls.

Feeders are of many types. The most primitive is the ordinary gate feeder that raises and lowers a gate at suitable intervals. This is objectionable, as coal is likely to get under the gate and be crushed. The coal also may interfere seriously with the movement of the gate. A second type operates like a door, opening outward and then closing. The objection to this device is that a large lump of coal may prevent the door from closing properly. A third type is a gate feeder that raises through the coal to shut it off and sinks below the pocket or chute floor to allow the material to flow. This feeder does not break the coal.

A fourth type is the reciprocating feeder. Many modifications of this excellent type of regulated discharge have been introduced, but they all have the same principles. The device is driven by an eccentric which

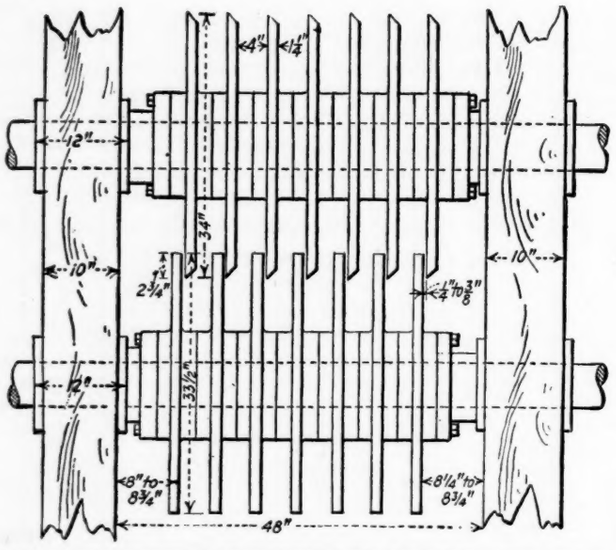


FIG. 6. PLAN VIEW OF PARDEE ROLLS NOW OPERATING AT THE COLERAIN BREAKER

One roll has plain disks and the other cutter teeth. These are cutters spaced to accord with the diameter of the size desired.

pushes a plate backward and forward. It usually operates at the bottom of the pocket. The coal slides gently down to the feeder, which takes a measured quantity of it and pushes it forward onto the shaking screens or other preparation equipment and then returns for another load. The fifth type is the revolving feeder. It resembles a shrouded gear or pinion, bearing, say, four teeth, but instead of teeth are a corresponding number of feeding compartments, into which the coal runs, and it is discharged as the feeder revolves. The rate of feed depends entirely on the size of the feeder and the number of revolutions per minute.

Shaker to Car Chute Ten per Cent Breakage

The three pieces of equipment employed in the preparation of coal where most degradation occurs are the rolls, the chutes and the pockets. A general manager of one of the larger companies says: "It is difficult to give figures on chute tests because of the varying conditions, but it is probably safe to say that the total breakage in handling coal from the shakers to the lip screen at the loading pocket would be from 10 to 12 per cent." This loss due to degradation figured over a year's time can become something enormous, for the prepared sizes of coal are worth at the mine from $7.50 to $8 per ton, whereas the steam sizes are worth only from $1.50 to $3.50.

In order that breakage may be decreased, space economized and a longer life obtained from the chute linings anthracite companies are experimenting with many types of chutes.

When coal is prepared near the top of the breaker some provision must be made for transporting this coal to the pocket. In the past this was done by means of long inclined chutes. In one breaker I have in mind one of these slides was 350 ft. in length. The friction of the coal on the chute lining and against the sides together with poorly-designed curves has caused much unnecessary coal breakage.

Today instead of these long chutes shorter ones of different designs are provided for lowering the coal. Among these are the spiral cast-iron chute, the spiral steel chute, and lastly, the spiral built-up chute shown in Fig. 7. This type of chute is advantageous in that it takes up little space and the coal is passed around curves so designed that breakage is reduced to a minimum. On the other hand, the acid water corrodes the lining rapidly.

The box chute, shown in Fig. 8, is rapidly coming into favor. It is a square box built of wood and lined with sheet iron. The coal passes down an inclined chute leading to the top of the box, in which is placed a pan that rises and falls in accordance with the amount of coal upon it. This pan is connected by a lever and wire rope to a door in the bottom of the vertical chute. When the pan ascends the door closes and when the pan is forced down by the weight of coal upon it the door opens. The vertical box is constantly filled to the top but as the coal backs up the slant chute the pan is depressed and the bottom door is opened, allowing the coal to pass out. When the weight of coal on the pan is not sufficient to weight it down it rises automatically and the door closes. In this way the box is kept full of coal. Because the box used is square there is some breakage in the corners, but in the new chutes now being built the corners are rounded. One disadvantage of the box chute is the difficulty experienced in relining it when the lining is worn out. In place of the present type of box it is probable that round vitrified clay pipe can be used.

Shaking Chute Works on Slight Pitch

In many places a shaking chute is employed to convey the coal from one point to another. The advantage of this construction is that the chute can be operated on only a slight pitch and the vertical space taken up by this type of chute is reduced to a minimum. Conveyors similar to the retarding conveyor are in common use for raising coal but are seldom employed for lowering it. When they are used breakage is reduced greatly.

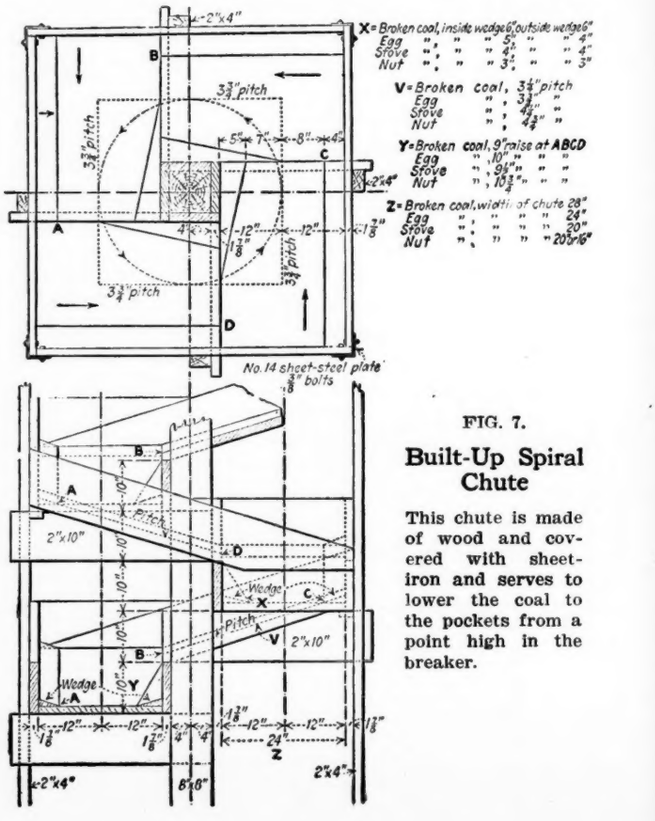

2"x4"
X = Broken coal, inside wedge 6", outside wedge 6"
Egg " " " 5" " " 4"
Stove " " " 4" " " 4"
Nut " " " 3" " " 3"
V = Broken coal, 3¾" pitch
Egg " , 3¾" "
Stove " , 4¼" "
Nut " , 4¾" "
Y = Broken coal, 9" raise at ABCD
Egg " , 10" " "
Stove " , 9½" " "
Nut " , 10¾" " "
Z = Broken coal, width of chute 28"
Egg " " " " 24"
Stove " " " " 20"
Nut " " " " 20 5/16"
3¾" pitch
5" 7" 8" 4"
4" 12" 12" 1⅞"
No. 14 sheet-steel plate
⅜" bolts
A
B
C
D
2"x10"
Wedge
Pitch
V
Y
24"
8 5/16"

FIG. 7.

Built-Up Spiral Chute

This chute is made of wood and covered with sheet-iron and serves to lower the coal to the pockets from a point high in the breaker.

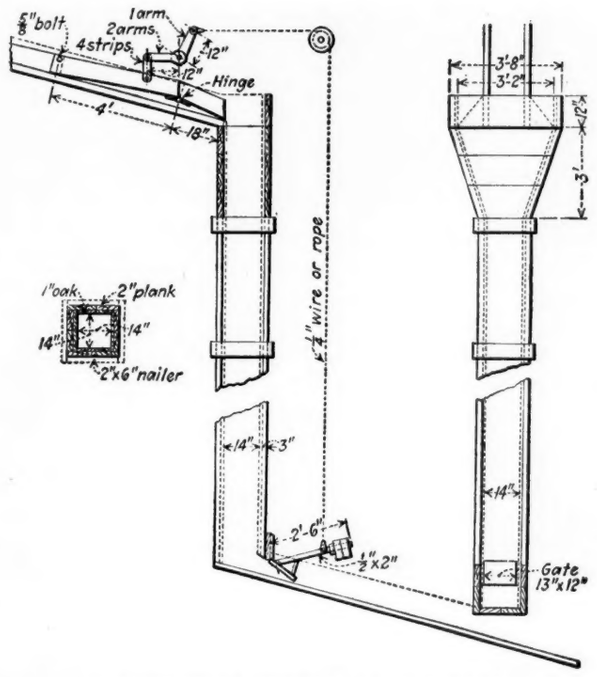


FIG. 8. BOX CHUTE OF SUSQUEHANNA COLLIERIES CO.
Lowers coal in the breaker and reduces breakage. Regulation is merely to keep box chute full, not to give an even feed or to regulate feed to accord with demand.

Still one other type of chute should be mentioned, namely, the White chute, which is used to deliver coal to pockets. This chute is shown in Fig. 9. Here the coal is fed through a spiral chute provided with a control regulating the quantity that can pass. This arrangement is similar to the box chute already described, except that it works in an opposite manner. In this case the coal passes under the pan and operates the gate in the chute.

From the stationary chute the coal is fed onto a movable one which discharges close to the sloping bottom of the pocket, down which the coal runs. As the pocket fills, the coal pushes the traveling chute back to offset the friction in the traveling chute. By actual tests it has been found that this type of chute reduced the breakage in the pockets 5 per cent.

What Percentage of Carbon Monoxide May Coal Gas Be Allowed to Contain?

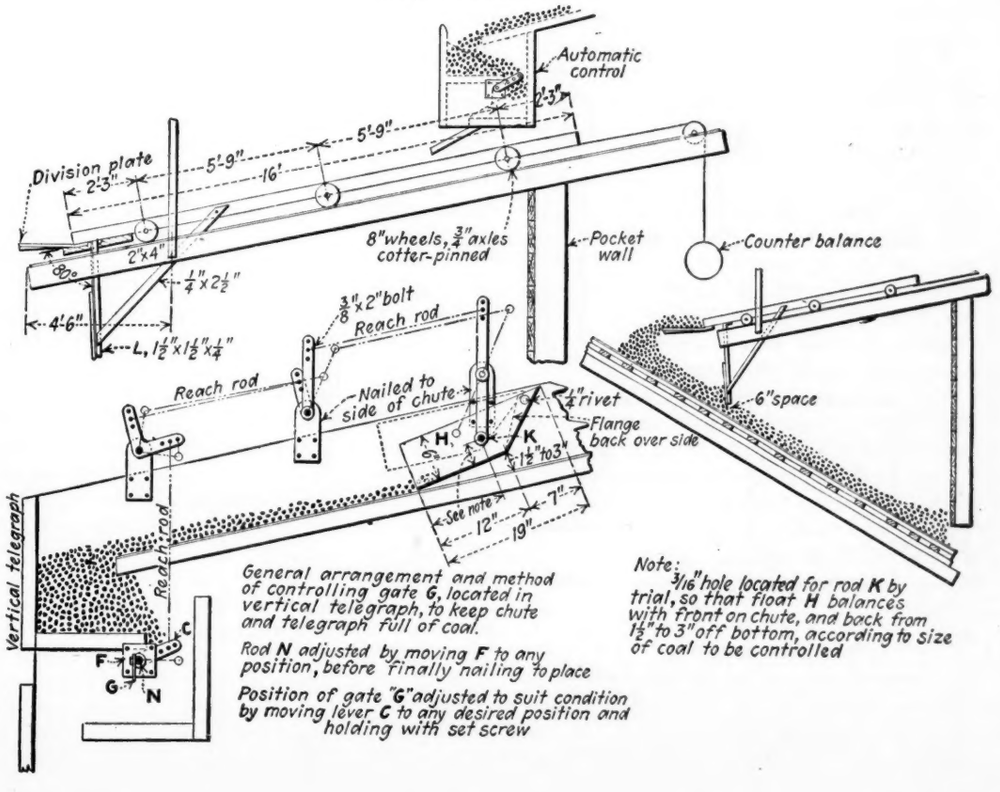
DOUBT having arisen as to the safety of using coal gas with large percentages of carbon monoxide, a departmental committee on that gas has been appointed by the Board of Trade of Great Britain, which has now presented a report that in the interest of cheap gas—an important desideratum in a country which has been much troubled with the smoke from half-burned coal and the fog arising therefrom—no limitations shall be put on the percentage of carbon monoxide. The committee says that in view of the warning conveyed by the "distinctive pungent smell of coal gas" it should be made an offense to furnish gas that does not have that characteristic.

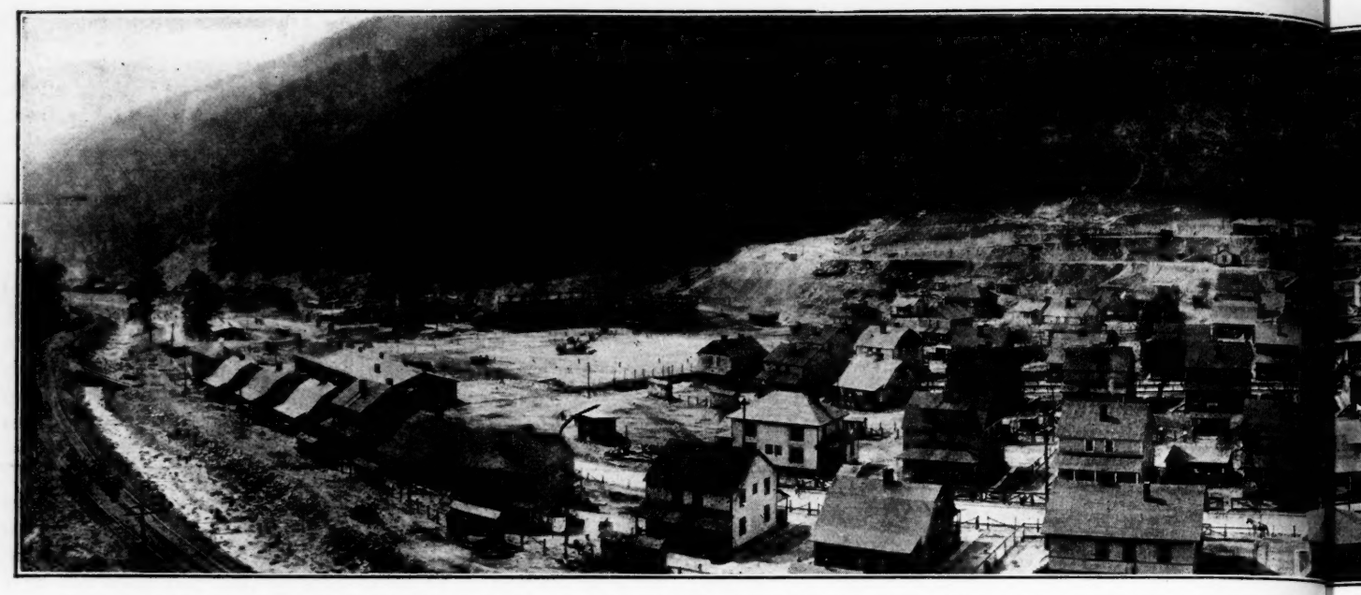
There is no law regulating the percentage of carbon monoxide in the gas supplied, but the Ministry of Health, following the practice of the Local Government Board when sanctioning loans for municipal undertakings, made it a condition that "in ordinary circumstances the total percentage of carbon monoxide in the gas supplied shall not exceed 15 per cent. Dr. Haldane advocated a restriction of the percentage to 20, holding that such a percentage was permissible because the improved gas burners, both incandescent and flat-flame, now constructed pass much less gas in a given time than in 1898. This would allow 33 per cent of blue water gas or about 50 per cent of carbureted water gas to be mixed with the coal gas. The report constitutes White Paper Cmd. 1422.

FIG. 9

White Chute

For sending coal to the pockets and controlling its velocity so as to reduce breakage. This control can be used on any and all the chutes in the breaker. The lower left-hand illustration exhibits method of handling box chute by movement of float H. The other illustrations show how the sliding chute regulates delivery to a pocket so that, full or empty, coal will be broken as little as possible. The new material is always deposited without an appreciable drop on the talus of the coal already in the pocket.





VIEW OF MINERS' HOMES IN VILLAGE OF LYNCH, KY., WITH BASEBALL GROUND ON LEFT AND COMMUNITY

Building Complete Thousand-Population of 7,000

Two Rooms Provided for Every Man with One Room for Every Twenty Inadequate, Has 133 Rooms — Fifty

By H. N. Eavenson
Pittsburgh, Pa.

THE section in which Lynch is located is entirely isolated from any large community; in fact the only town of any size is the neighboring village of Benham, which contains perhaps 2,000 people. There is no other town having more than a few people within twenty miles by rail or nine miles across a steep mountain trail. Everything required for comfortable living in the ordinary large town would have to be furnished by the United States Coal & Coke Co., so it was fortunate that all the property was owned in fee simple and that there were no outside lots or owners to create embarrassment in laying out the town.

How Probable Population Was Estimated

It was estimated that to produce the capacity required the average daily output by employees of all classes would be about four tons; so for the desired production of 8,000 tons per day 2,000 men would be required for all purposes. At the older plants of the United States Coal & Coke Co., in the Pocahontas field, a careful census, taken at various times, had shown that ordinarily there were two people on the plant for each man on the payroll. It was thought that at Lynch, partly because of its location and partly because so many of the foreign miners had left the country, this small proportion would not hold, but that the probable population would be about 6,000 to 7,000.

The number of rooms per man employed in coal-mining communities in isolated situations of this kind has been steadily rising for some years. In the Pocahontas region, at the older plants, the number of rooms has risen within six years from 0.99 to 1.85 rooms per man; so it was decided that two rooms per man should be built, or a total of 4,000 rooms. As the most popular type of house averages four rooms, this meant a total of 1,000 houses.

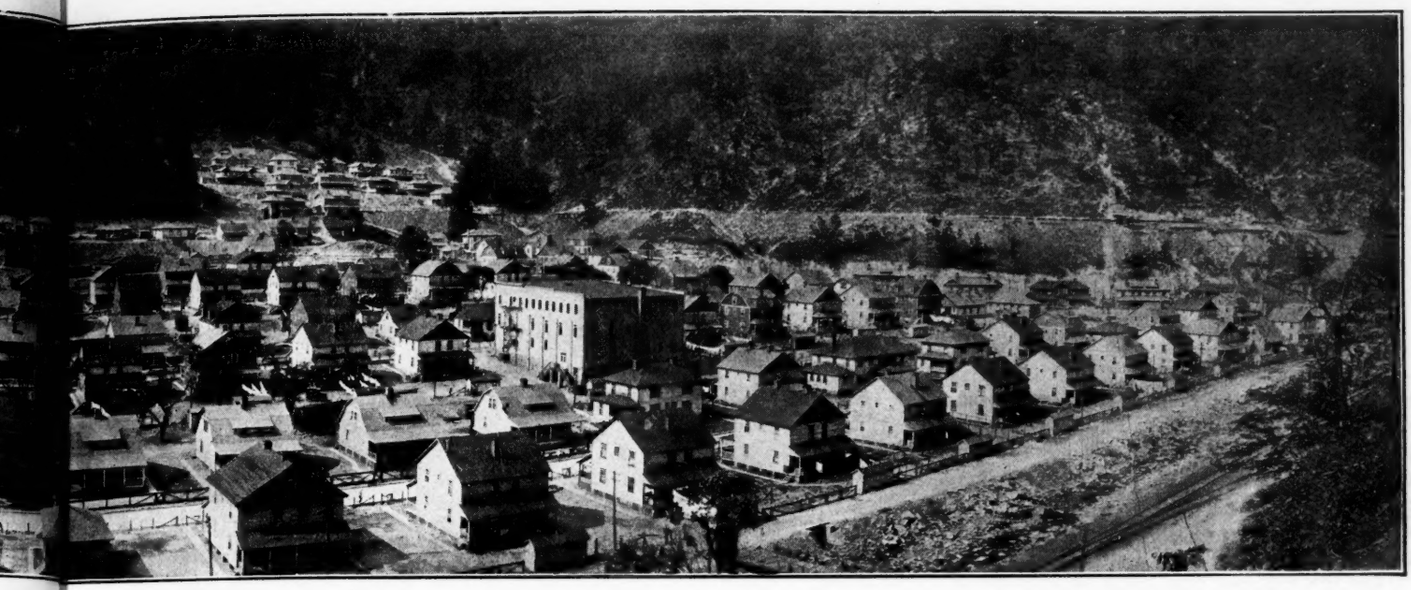
The amount of space available for various purposes, though larger than is usual in this mountainous region, was not adequate for a town of this size, using single houses; even with double houses it was necessary to place the houses closer together than would otherwise be desirable. The final decision was to construct 400 double houses and 200 single ones, and to place the houses at a minimum distance of 30 ft. apart.

Company Hotel Found to Be Too Small

At many of the older plants the need of a large clubhouse or hotel has been badly felt many times. Prior to starting the Lynch plant it had been the custom at many of the large plants to provide a fair-sized building in which the clerks, engineers, store employees and some of the unmarried mine officials could find suitable living accommodations. After a careful study of the conditions and requirements at the older plants of the company it was decided that a building having at least 100 bedrooms with the necessary dining rooms, parlors, toilet rooms, etc., would be required for the Lynch plant.

The building erected contains 133 rooms, of which 108 are bedrooms, in addition to a large basement and attic; the remainder are the usual service rooms. The size of this building has been much criticized, but at practically no time since it was completed have there been any unoccupied rooms. In fact, during much of this time it has been necessary to provide sleeping quarters in the attic. The basement was utilized for a shoe shop, clothing store, jewelry shop, soda-water fountain and cigar store; four bowling alleys and three pool tables also were installed. In addition, five large boarding houses were built for the accommodation of the unmarried miners. Table I shows how many houses were erected.

*Third installment of an article entitled "Lynch Plant of United States Coal & Coke Co.," presented at the September meeting of the American Institute of Mining and Metallurgical Engineers. The two prior installments were "An 8,000-Ton Tipple with a 5,000-Ton Storage Bin for Coking Coal Erected at Lynch, Kentucky," which appeared Sept. 22 on pages 452-458, and "Heavy Cover and Need for Quick Tonnage Determine Underground Methods at Lynch Mines," which appeared Sept. 29 on pages 492-494.



HOUSE TO RIGHT OF CENTER. TWO-THIRDS OF HOUSES CONSTITUTE DWELLINGS FOR TWO FAMILIES

Dwelling Town for a Mine at Lynch, Kentucky*

Employed—In Addition a Hotel Employees — Hotel, Already Houses Heated with Hot Water

TABLE I. SCHEDULE OF HOUSES ERECTED IN LYNCH, KY.

Plan Number	Type	Number of Rooms	Bath?	Number of Houses	Total Number of Rooms	Number of Families
46*	Single	8	Yes	1	8	1
33†	Single	7	Yes	6	42	6
40	Single	6	Yes	6	36	6
41	Single	5	Yes	6	30	6
32	Single	4	Yes	7	28	7
37	Single	3	No	18	54	18
38	Single	3	No	42	126	42
39	Single	4	No	95	380	95
35	Single	5	No	15	75	15
42	Single	23	Yes	5	115	5
14	Double	8	No	182	1,456	364
29	Double	8	No	58	464	116
36	Double	10	No	30	300	60
34	Double	12	No	10	120	20
31	Double	6	No	120	720	240
				600	3,954	1,000

* For superintendent. † For officials.

The various types of houses are shown in Figs. 1 to 6. They are all plastered and are constructed of wood except a small number of wood houses built the first winter (which are ceiled with wall board) and six officials' houses, which are of concrete block, stuccoed. All the plant buildings and about fifty of the houses are heated by hot water. These have solid stone-wall foundations. The other houses are heated by grates, one in each room, are set on stone piers, and have double floors, with building paper between, for the lower floor. Spaces between piers and between porch posts are closed by flooring boards. All the roofs and gables and in some houses the upper stories also are covered with asphalt shingles, both green and red being used. Experience has shown that, taking both appearance and wearing qualities into consideration, this type of roof is the most satisfactory cheap covering yet tried.

In many of the house types it has been possible to vary the details and shapes of the house and porch roofs of houses while maintaining the same interior arrangement. These changes, the number of plans and the various colors used have averted the monotony in appearance which coal mining plants so frequently have. All houses are given three coats of ready-mixed paint on the outside and two on the inside. Yellow, light gray and white body colors are largely used, though a small number are painted green and red. White, green and black are used for trim.

Where the ground is flat, the lots are usually 100 ft. deep and from 32 to 66 ft. wide, depending on whether the house is single or double. On the hillsides a broad

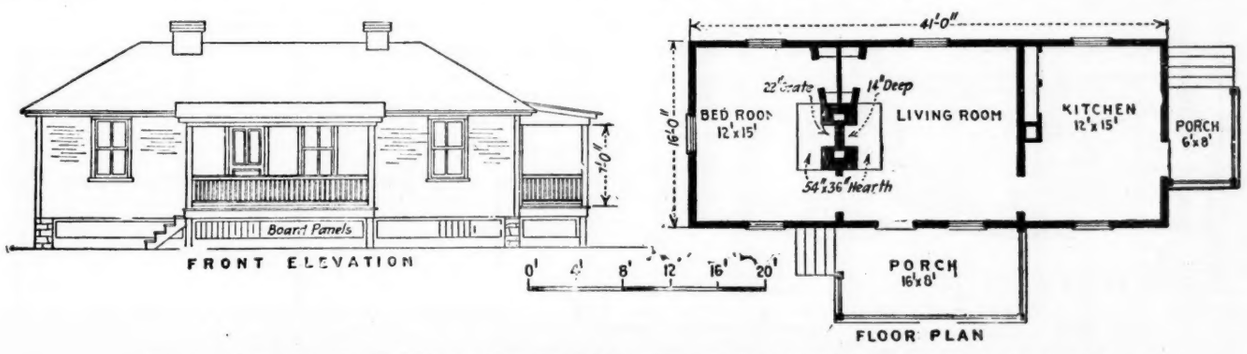


FIG. 1. ONE OF TWO TYPES OF THREE-ROOM HOUSES, ALL ROOMS BEING ON SAME LEVEL

In all sixty three-room houses have been built, all of them single as is this one. Each house has a porch of fair size in the front and a small porch at the side.

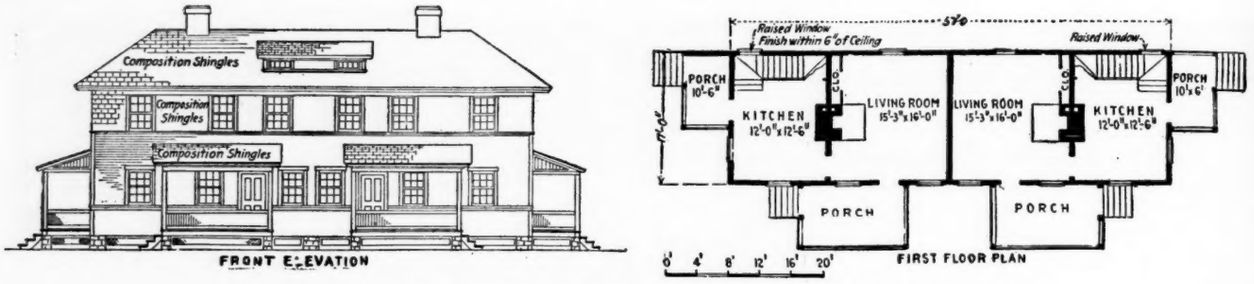


FIG. 2. ONE OF TWO TYPES OF FOUR-ROOM DOUBLE, TWO STORY HOUSES
The porches in the front are not made continuous but are separated several feet from each other, thus keeping the families apart.

slightly sloping bench about 43 ft. wide is excavated, a road and sidewalk being placed at the bottom of the slope, just back of the house. The lots used allow gardens as large as the ordinary family cares to cultivate, although they would have been made larger had space allowed. All houses are fenced with a standard steel-wire fence. In this climate this type of fence has proved durable and satisfactory.

The town layout was made so that none of the street grades exceeded 10 per cent at any place; on the main street none over 5 per cent was allowed. The main street throughout the town is a part of the state highway system and a roadway width of 22 ft. with a 4-ft. walk on each side was provided. On the side streets the roadway was made 16 ft. wide with the same sidewalks. Alleys were made 10 ft. wide. All sidewalks, curbs, gutters, walks from the sidewalk to the front and rear porches of each house, and the entire roadway of the main road were made of concrete; all are one-course work, 1:2:4 mix, and built in accordance with standard specifications of the Portland Cement Association. It is the intention to macadamize only side streets, as the traffic on them will be comparatively light.

Allowance of 50 Gal. per Person Adequate

Experience at the older mines had shown that a water supply of 50 gal. per person per day would be sufficient for town purposes, so a steel tank with a capacity of 300,000 gal., or about one day's supply, was installed on the hillside above the power house, at an elevation sufficient to supply pressure for two standard fire streams at the highest fire hydrant in the town. The supply mains are 8 in. in diameter, and the distributing lines have a diameter of 8, 6 and 4 in., and are so interconnected that water can be furnished practically anywhere in the town through two lines. All pipes are steel, asphalt-coated, with sleeve joints. All fittings are flanged; flanges are also put on all lines at intervals of about 200 ft.

Every line has a valve where it leaves the main, and blow-out valves are provided at dead ends. The house supply lines are all 1-in. asphalt-coated pipes, and in each kitchen a cast-iron sink about 20 x 30 in. is installed. Each service pipe is provided with a stop and waste cock underground with a handle extending into the kitchen; between the ground and the floor it is boxed and surrounded by manure. Fire plugs are placed at intervals so that no house is more than 200 ft. from at least one plug, and waxed canvas fire hose, $2\frac{1}{2}$ in. in diameter, with 1-in. nozzles in 250-ft. lengths, on reels, is provided at suitable intervals.

Water is procured from deep wells, located near and above the power plant. These are blown by compressed air, and the water flows to a concrete sump at the power plant, from which centrifugal pumps, having a capacity of 800 gal. per minute, lift it to the tank. The pumps are in duplicate, but only one is used at a time. The well supply has not been sufficient, so lines have been laid up Gap Branch and Looney Creek to points well above the town, from which the creek water will flow to the sump, where it will be chlorinated before being pumped to the tank. In exceptionally dry periods the creek supply also is quite limited, so provision is being made for a storage supply by driving some rooms in the mine under Gap Branch, which will be filled through a borehole in the run and the water be retained by a dam until needed, when it will flow by gravity to the sump at the power plant.

The town is lighted by electricity, the main distributing lines to transformers being at 6,600 volts, and from the transformers on the three-wire system at 230-115 volts. All houses have at least one light in each room

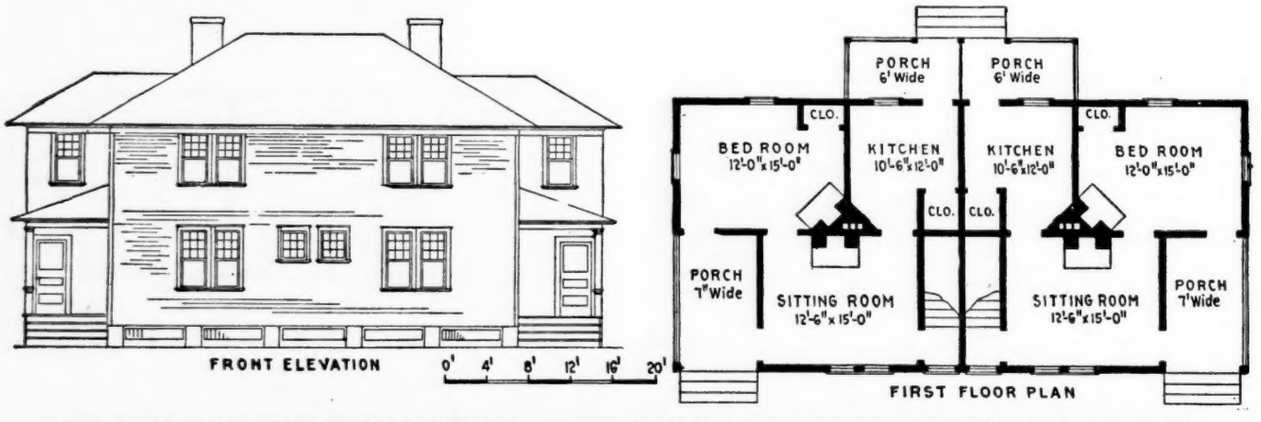


FIG. 3. ARRANGEMENT OF DOUBLE FIVE-ROOM TWO-STORY HOUSE, OF WHICH THERE IS BUT ONE TYPE
The porches are set in on either side of the building and in the rear. There are only thirty of these houses, sheltering in all sixty families

and one on the porch. Where the houses are close to the streets, the porch lights give enough illumination; in other places street lights on poles are used.

Except the main buildings and houses having inside toilets all houses have outside closets equipped with concrete septic tanks which are constantly kept filled with water. The fecal matter in these liquefies and escapes through 4 or 6 in. sewer pipes, to which also the kitchen sinks drain, into the main sewer. The entire town is sewered and at its lower end the sewage flows into a concrete sump, from which centrifugal pumps lift it to a treating plant on the hillside (Fig. 7).

Here the sewage passes through septic tanks, a settling basin and a chlorination tank, from which it flows to the creek. Provision has been made for a sand filter after the chlorination treatment, but this has not been built, as it is felt that for the present this treatment is unnecessary. The sewage treatment plant was designed by L. D. Tracy, of Pittsburgh, Pa. The pipe lines were designed for a flow of 250 gal. per house per day, with allowance for 300 additional houses, and for an infiltration of 40,000 gal. per mile of sewer per day.

The surface drainage from the various ravines ex-

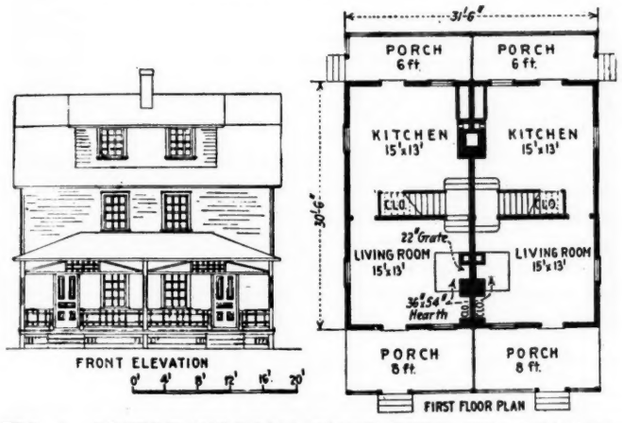


FIG. 4. DOUBLE SIX-ROOM HOUSE WITH TWO STORIES AND ATTIC

The stairway ascends from the kitchen, leaving the living room an unobstructed 15x13 ft. The porches abut both front and back.

tending through the town site is taken care of by open-masonry culverts, the sizes of which are calculated by the formula

$$\text{Area in square feet} = \sqrt[3]{\text{Area in acres}^2}$$

which gives results suited to this mountainous country with its steep slopes and quick runoff. The open culverts are more easily cleaned and cared for than closed ones.

As the town is entirely isolated from any sources of amusement it was necessary to provide everything required to keep the inhabitants amused. A ball park was laid out at the lower end of town, and during the season the ball team furnished one of the main attractions. The ground is also made for carnivals, circuses and such attractions; an additional park may some time be built above the upper end of town on space reserved for the purpose.

In the lower end of the town a large frame building for community purposes has been erected and is always well patronized. On the ground floor (Fig. 8) are located a restaurant, where both white and colored are served in separate rooms, from one kitchen, and a movie theater; on the second floor is the gallery of the theater, which is used by colored people, the ground floor being reserved for the whites; and a room containing four bowling alleys, one billiard and two pool tables,

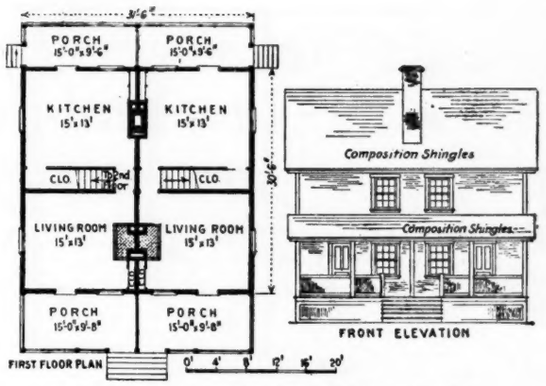


FIG. 5. DOUBLE FOUR-ROOM HOUSE

This is of type different from that in Fig. 2. This plan has depth rather than breadth, which is the characteristic of the other double four-room house.

and a barber shop; on the third floor is a large dance hall with the necessary retiring rooms, and a lodge hall for the fraternal organizations. The theater seats about 450 persons, and has a stage and dressing rooms where the usual program can be varied by occasional vaudeville shows.

A similar but larger building has been designed for the upper part of the town, but has not yet been built. This theater will have about 900 seats. It is to be built of stone. Dances are held in the hotel at intervals.

With the exception of a few small stores operated by

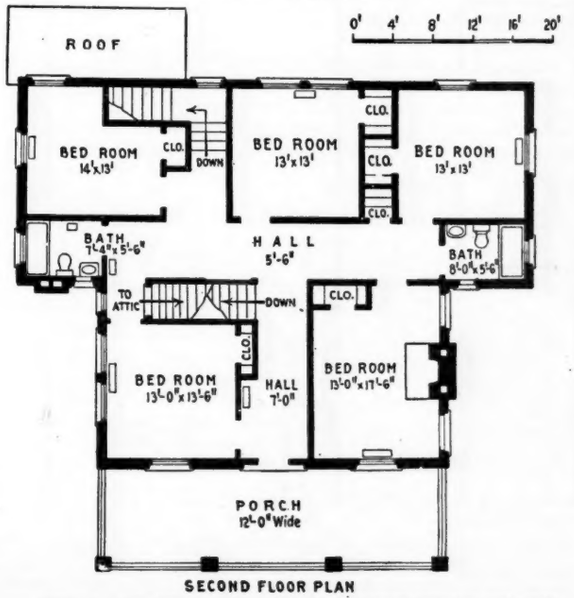


FIG. 6. SUPERINTENDENT'S EIGHT-ROOM HOUSE

This house has two bathrooms, a hall and plenty of closet room. The porch also is quite spacious.

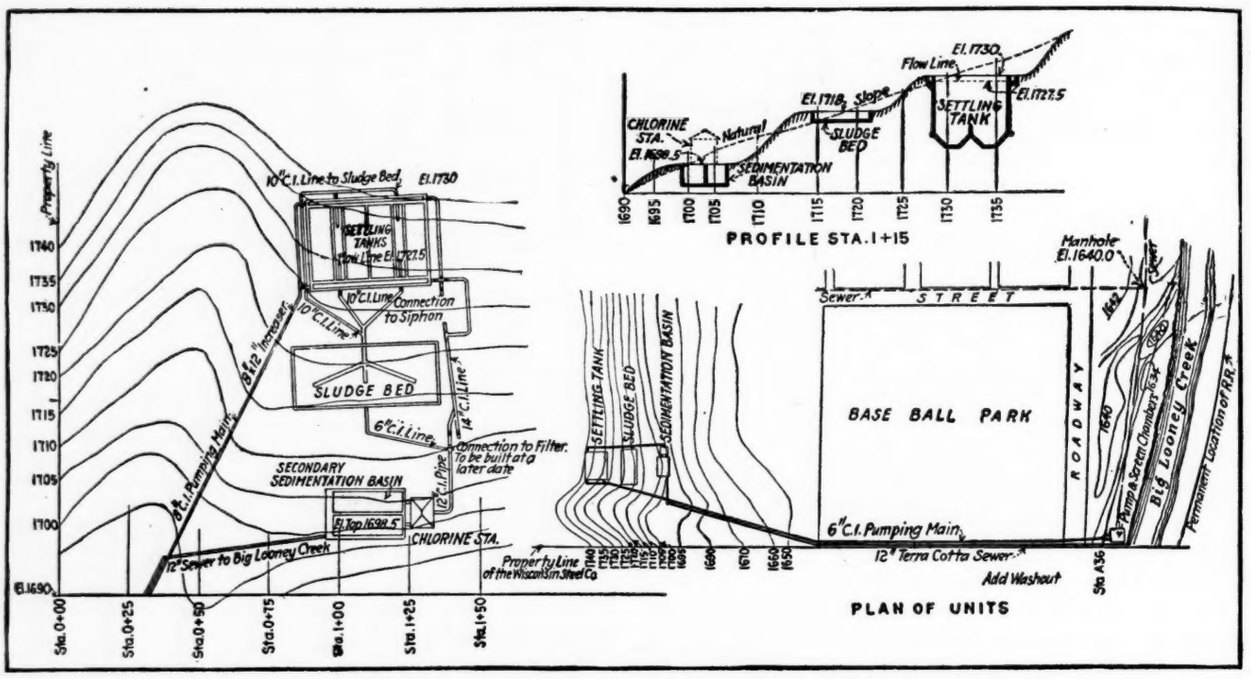


FIG. 7. SEWAGE-DISPOSAL PLANT SET ON EDGE OF TOWN BY BASEBALL PARK
All the houses not having inside toilets have outside closets with concrete septic tanks which are kept constantly full of water. The fecal matter liquifies and escapes to the main sewer. Reaching a concrete sump it is lifted by centrifugal pumps to the treating plant on the hillside

some of the tenants in the houses, where soft drinks and a few staples are sold, the store business in the town is handled by the United Supply Co. After a careful study of the requirements by James W. Anawalt, president, plans were drawn for a store building 160 ft. wide by 100 ft. deep, three stories high with a basement as long and as wide as the building. The outside walls of the store are of native sandstone, and the columns, floors and roof beams are of reinforced concrete. The roof is of structolite blocks, which are covered by prepared asbestos roofing.

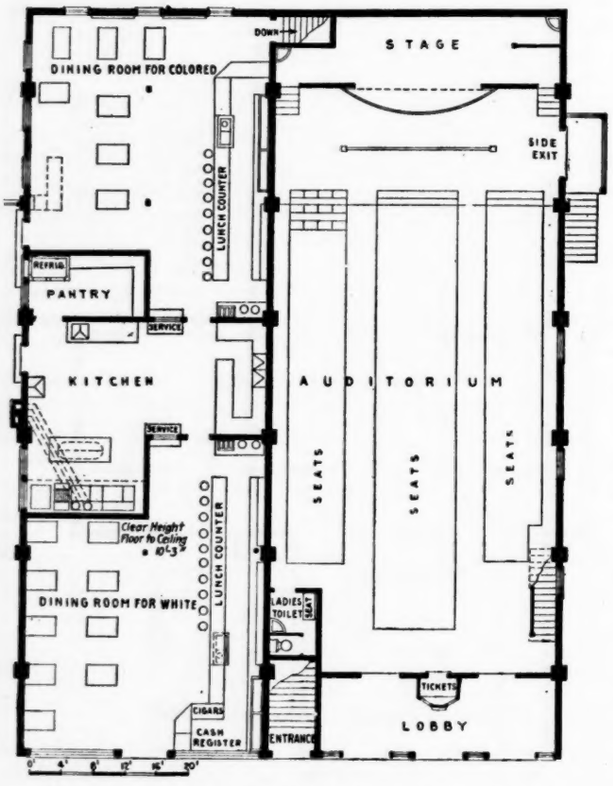


FIG. 8. AMUSEMENT OR COMMUNITY BUILDING
This is shown on the frontispiece. The floor of the auditorium is reserved for whites and the gallery for colored people. On the second floor are four bowling alleys, one billiard and two pool tables and a barber shop. A large dance and lodge hall occupies the third floor.

12-Ton Refrigerator Plant Installed

In the basement one 7- and one 5-ton machine manufacture ice and refrigerate two cooling rooms, each with a capacity of a carload of meat, and the main refrigerator and the refrigerated counters in the meat shop in the main store room. A bakery also is located in the basement; this has a continuous type of oven with a large daily capacity of bread, cakes, pies, etc. The basement is arranged so that a truck can be driven through it and loaded; goods kept in storage can be unloaded directly into it from cars on a siding back of the store.

On the first floor the main storeroom, a drug store, meat shop and supply room are located; and on a mezzanine are located a ladies' and children's dress and shoe department, a storeroom and ice-cream room for the drug store. On the floor above are one five-room and one six-room flat with bath, six bedrooms with bath for the male help and large storage rooms for furniture, carpets and other household goods.

The main storeroom and the drug store are floored with linotile; the meat room is floored with white vitrified tile and wainscoted with opaque glass, and the refrigerated counters have a display of meats, butter, cheese, etc., and a large refrigerator for the meats actually being handled. The entire room is well screened and is thoroughly sanitary in every respect. So far as is known, this is the largest and most complete store for this purpose in this country and compares well with department stores in many of the cities.

West Virginia-Kentucky Mine, Mechanical and Electrical Engineers Meet Conjointly with Coal Exhibit—II

Conditions Under Which Bond on Ball of Rail Can Be Made to Work—Reversing Polarity of Track and Trolley—Headlighting Locomotives—Method of Replacing Material in Tire Grooves

BY R. DAWSON HALL*

ONE of the interesting addresses of Wednesday, Sept. 21, was that by C. A. Hornell, chairman of the Committee on Cars and Operation of the Nickel-Iron Type of Mine-Locomotive Battery. R. R. Webster wanted to know if holes in the battery casing could be electrically welded with satisfaction and without injury to the battery. Mr. Hornell believed that this would be a satisfactory solution, every attempt to solder such holes having hitherto failed. The solder would not remain in place.

W. P. Bovard then reported on the bonding of track in coal mines, saying: "Basically, rail bonds in any return circuit must furnish a continuous path of low electrical resistance for all of the current to flow from joint to joint. In a mine-haulage circuit of any appreciable length it is often found that the voltage between trolley wire and rail at some distance back from the mouth of the mine is extremely low, often as low as 90 volts under peak-load conditions. With this prevailing condition it is difficult for the power equipment to handle the loads. Armatures are overheated and in many cases frequent burnouts occur.

WHERE GOOD BONDING ELIMINATED REPAIRS

"I know of an actual incident in which an armature repair company was receiving a steady flow of business from one of its mine customers on rewinding of armatures and repair of commutators. This business suddenly stopped and upon inquiry by the repair company it was found that the mine operator had seen the error of his ways and had completely rebonded his mine, the result being that the loads were more easily handled, with greater speed, and armature failures were only a small percentage of what they had been with the poor bonding.

"Dim lighting both along the entries and from headlights on motors is another result of a poor return circuit, and is dangerous, as all the advantage of an otherwise efficient lighting system is lost owing to the low brilliancy of the lamps."

J. H. Edwards asked Mr. Bovard whether any bond attached to the ball of the rail had been found satisfactory for mine use and received as a reply a statement that he did not know of a single instance. E. D. Knight asked what was the minimum weight of rail to which such a bond might be applied, and Mr. Bovard answered: 40 lb., but the weight would depend much on the standard of operation maintained. Explaining that this has reference to the flanging of the wheel he said he regarded even ⅛ in. as an excessive flanging for this method of bonding.

Mr. Knight wanted to know if the false flanging did as much harm where the wheels, being new when the bonds were installed, gradually flanged in service. Would not the bonds wear down as the wheels flanged whereas with a false-flanged wheel and a new bond there would be a bad shock?

Mr. Bovard agreed that the bonds might give satisfaction under those conditions. In fact the locomotive could bump over upstanding welds if the welds had been well made. Mr. Wesley said that the degree of interference of the bonds with the passage of locomotives along the track much depended on the degree to which the welder had built up metal in making his weld. Many put the bonds too high. The fishplates should be tightened up well before the bonds are put on. One member was disposed to believe that no attempt should be made to bond rails to the ball of the rail with a rail weighing less than 60 lb. per yard, for the least movement of the joints would break the bond.

Mr. Tyler advocated attaching the rail to the positive terminal of the generator instead of to the negative. He favored this arrangement because with it better welds would be obtained. The heat would be on the work and not on the electrode, which was the end desired. Mr. Bovard said the polarity could be changed at night for night welding, but Mr. Tyler said: "Why change back again?"

WILL REVERSED POLARITY CAUSE ELECTROLYSIS?

Mr. Bovard was a little afraid of electrolysis if the bonding was bad and urged that with the rails positive the current might do more harm to the pipes near the track. Mr. Tyler replied that it would seem to him that the electrolytic action would be less severe if the rail were positive, for though metal might be removed from the rail by the current leaving the track it would not remove it from the pipe into which the current went.

Mr. Edwards said that there would be electrolysis, however, where the current left the pipe. Nevertheless, he believed that coal mines would soon break away from railroad practice (which was planned to save the pipe lines of gas, electric and steam-heating companies) and would take up with the positive rail and negative trolley. He declared himself ready to modify his practice by introducing the positive rail.

It was pointed out that where the rail was positive the point at which the current left the pipe and exposed it to electrolysis was near the locomotive. This was a moving point, so that electrolysis would be scattered. Where the rail is negative, the current leaves the track near the locomotive and the pipe lines are not subjected to electrolysis except near the mouth of the mine, where the current begins to leave the pipe for the generator.

The generator is fixed, so this point is somewhat definite; at any rate far more fixed than the point at which the current when the rail is positive will leave the pipes for the locomotive when reversed polarity is used. As this is so in the case of the standard polarity it is easy to bond the pipe line to the rail near the power house and drain off the stray current without electrolysis, thus confining that action to the rail in the neighborhood of the locomotive.

DIFFERENCE OF VIEW AS TO POSITIVE RAIL

F. M. Reigher said that with the use of the positive rail there would be greater corrosion in the bonds; that they would be destroyed in five years. The life would be taken from the copper and it would break off. The electric current would not leave by the rail alone. It would leave at the bonds also and they would suffer by electrolysis. He said he had not had any experience with reversed polarity but that was how he viewed the matter theoretically.

E. D. Knight said that a mine had run with reversed polarity for two years before it was discovered and another said his had run for a year that way and neither had experienced any bad results. Those present in general did not seem to fear the electrolysis of pipes, especially as in many of the cases the piping paralleled the rail for only a short distance and then made off at a considerable angle. One member declared he had bonded his pipes to his rail and had had no bad effects.

Roscoe Woltz said that he had found that electrically-welded bonds had given him unfavorable results, which he

*Editor, *Coal Age*.

ascribed to the inexperience of the welders employed and the rust on the rail. An incompetent welder does not trouble himself about a little rust.

R. R. Webster had found his welding arc was blown out when the locomotives were working close by. He presumed that this was due to the magnetism in the rail. Mr. Bovard said that was one of the causes but the instability of the current under those conditions was another.

George Donelson, chairman of the Committee on Mine-Locomotive Headlights, was not present to report. George E. Suiter, however, made a short statement expressing his preference in favor of a 115-volt incandescent lamp in series with the resistance and mounted on an Edison base.

Double-Contact Base for Lamps Preferred

J. Lewis Dawson, another member of the committee, said that he preferred the double-contact base because the screw lamp could be stolen for house use and the single-contact base lamp for the automobile. The lamps at the two ends of the locomotive should not be in series, for then if one went out the other did also, and the motorman had to come out in the dark.

He preferred the mirror reflector because of its permanency. He did not believe in mounting the headlight above the locomotive, as in many places curtains were hung to divert the air current into the rooms and the curtain often caught in the headlight as the locomotive passed.

The discussion then drifted to theft. Mr. Woltz wanted a lock on the lamp, but the question arose as to who should have a key. If every motorman had one, the number of keys that would be abroad would be legion. At many mines everyone seemed to have one, and lamps were always missing.

If only one man had a key, motormen would be found going around in the dark, with great danger to the mine workers and to the annoyance of inspectors. One member wanted the company initial stamped on the glass of each lamp and said it could be done for one cent.

Unfortunately, lamps such as were used for headlights were for sale at stores and if found in the houses of workmen could not be proved to have been stolen, and if stolen they might have been taken from some other company that was using them. However, it was possible in a degree to circumvent the declaration that the lamps were not stolen by saying that the company furnished house current with the understanding that 50-volt lamps and under were to be used. All lamps of larger capacity when discovered could be ordered out, but that was a provision almost impossible of enforcement. One man spoke favorably of the arc-lamp headlight with the Crouse-Hinds reflector, believing this combination to be the best.

Automatic Taper, or Even Potential, Charge

On Thursday R. A. Whetstone, Jr., chairman of the Committee on Care and Operation of Lead-Type Mine-Locomotive Batteries, introduced Mr. Tierney, who read a report on the charging of lead-type batteries, emphasizing the importance of distilled water and clean batteries. He advocated the automatic taper charge at constant potential. The generator delivers current at 126 volts.

Suppose the battery has been discharged to such an extent that it will generate only 100 volts. The current at 126 volts is passed through the cells, gradually raising the voltage of the battery to 120 volts. With the finishing current 24 amperes and the final voltage drop 6 volts, the

$$\text{resistance R, } = \frac{\textit{voltage difference}}{\textit{current}} = \frac{E}{I} = \frac{6}{24} = 0.25 \text{ ohms.}$$

Taking this resistance and the starting voltage difference as 26 volts, then the starting amperage,

$$I, = \frac{\textit{voltage difference}}{\textit{resistance}} = \frac{E}{R} = \frac{26}{0.25} = 104 \text{ amperes.}$$

Thus the charge has tapered from 104 amperes at the start to 24 amperes at the finish. This is also termed the constant potential charge. For this purpose a motor-generator set delivering current at 126 volts should be provided.

The other method of charging is by the two-step charge. The early part of the charge is given rapidly by a relatively large current and the finishing charge by one which is smaller. The small quantity of lead sulphate in the negative plate when the charging is nearly complete is not able to consume all the current by chemical change and if the current is not reduced the rest of the current is taken up in the dissociation of the oxygen and hydrogen in the water, causing gassing.

The members of the Committee on Repair Shop Equipment and Methods being absent the report was read by Herbert Smith. Roscoe Woltz felt that the report did not contemplate such a repair shop as he thought a good mine plant should possess. The committee favored omitting any machine tools in the electric room. Mr. Woltz believed a lathe should be provided for electrical work. He also would have a foundry in connection with a plant of that character with an expert pattern maker and foundry man.

Mr. Rogers remarked that an electrical engineer had said to him that no mine ought to manufacture electricity, as its proper business was digging coal, not running a power plant. Yet this same engineer had an elaborate repair shop and did not only repair work but built machinery also. He thought the electro-mechanician at a mine should spend his time below ground avoiding the need for repairs rather than above ground neglecting his equipment and specializing on its repair. Mr. Woltz did not agree with Mr. Rogers and gave an example where a foundry had saved much delay which, had it occurred, would have severely hampered operation.

F. Auld then gave an address on "Elementary Principles of Electricity," introducing an interesting model elucidating the principles of the two-phase current. The mechanics of this model were too complicated to make it possible to extend the principle to cover three-phase operation.

What Kind of Drive Should We Provide?

J. B. Pennman read the report of the Committee on Comparison of Belt, Chain, Gear and Direct-Connection Drive for Stationary Equipment, such as mine pumps and fans. Mr. Pennman pointed out that the chain could be modified to suit a change in the fixed centers and so could accommodate itself to conditions better than the gear drive. It also takes up shock, which the gears would transmit unimpaired. The committee believed that the chain drive was preferable for fans.

R. R. Webster said that after about six months' experience he had gone back to the belt from the silent chain drive. The chains invariably would climb on the sprockets. Another declared that he had been using two Link-Belt silent chains side by side since 1918, and had experienced no trouble. They were driving a fan which required 200 hp. by day and 60 hp. by night. The chain had about 18 in. of slack. He complained that with a belt drive when there was a surge on the fan the stitches of the belt frequently tore loose.

N. A. Johnson said that he had used a silent chain drive for picking bands at a tipple with excellent results. It had been in operation two years and despite the dirt to which it was exposed it had given no trouble. A little grease had kept it going steadily. Thus assured he had installed some eight or nine months ago a chain drive for a fan. This had more favorable conditions but destroyed the sprockets from overdrive. The chains were of identical make and all the conditions would have led one to expect failure where there was success, and success where there was failure. He said it was cheaper to buy pins than to purchase new belts. Mr. Edwards said that he had found so much trouble with direct-connected motors that he had thrown practically all of them out.

In the afternoon some of the members visited the plant of the Ironton Engine Co., where an 8-ton duplex locomotive of the same model exhibited at the Huntington Coal & Industrial Exposition was being manufactured. This type of locomotive has motors on either end of the car which drive through a single direct-connected shaft and worm gear. By this means it is possible to run the locomotive either with power from the trolley wire or from the storage batteries which the locomotive carries with it.

By the arrangement provided, the motors can be, and

are, designed respectively for the circuit from which they operate. Thus each motor is suited to the voltage which is supplied to it—250 volts or thereabout from the trolley line, or 80 volts from the storage batteries. The motor consequently works under conditions most favorable to economical operation. All the wheels are drivers with the axles connected to obtain maximum tractive effort.

If the weight comes more on one pair of drivers than on another, as is invariably the case in starting a trip, the locomotive gets the full advantage of the motor power. That would not be the case were one motor independently geared to each axle. Speed from the battery operation is approximately 3½ miles per hour at rated draw-bar pull. This, of course, is used on the temporary track in rooms where a greater speed would be likely to result in derailments.

When running from the trolley line the speed is approximately six miles per hour at rated draw-bar pull. Thus the locomotive performs its duties like an ordinary storage-battery locomotive when on poor rail and is able to make the speed of a trolley locomotive, which, indeed, it is, when traveling on the more solid roads. In this manner it is arranged that both motors are constantly revolving, and when one is in operation the other is being cooled by virtue of its rotation, that rotation being off-load.

Electric Arc Welding Pays Big Dividends

On Friday, Sept. 23, E. Wanamaker, electrical engineer, Chicago, Rock Island & Pacific Railway Co., gave a most valuable and interesting address on the "Electric Arc Welding Process and Its Commercial Application." Mr. Wanamaker described the early development of the process in railroad shops. He said he had found that the welder should not be asked to do hard work such as lifting, as it binds the muscles so as to destroy the wrist action. The skillful penman, the artist and the telegraph operator using the Morse key should all avoid muscular strain, and what was true of them was equally true of the welder.

Mr. Wanamaker had abandoned the graphite or carbon electrode. The good welding engineer should know what heat to employ at the point being welded, the correct polarity to be employed in doing the work, how to control the heat, how to protect the weld from oxidation, at what angle to hold the electrode and the direction of working the weld. Different welds needed different methods of operation. He should also learn how to inspect a weld. He should be able to judge whether the metal had flowed smoothly, whether there are inclusions of slag or air bubbles. A good method of examination was by the use of kerosene, which would go through a poor weld that had air bubbles.

He said that his company had expended $50,000 in the preliminary experiments, not enough knowledge of the art being available to guard against expensive mistakes. With 117 outfits valued at some $150,000 the company was saving 300 per cent of that amount annually on its repair bills. He hoped soon to have 150 outfits but he was about to tackle jobs which were not as profitable as those performed in the past and on these he expected to save only about 40 per cent per annum.

How to Renovate a Worn Locomotive Tire

Mr. Bovard asked how to build up a locomotive tire. Mr. Wanamaker said that before the flange had reached such thinness to justify its being discarded a coating of metal reaching from the point of the flange to the tread of the wheel was added by welding all around the wheel. He used a medium-carbon steel electrode of about 0.5 per cent carbon. Later he tried a high-carbon steel and finally an electrode of manganese steel with 12 per cent manganese.

This was put on circumferentially in lengths of 8 to 14 in. and not by weaving to and fro radially. He said that with a large wheel there was no risk that overheat would cause a necking or nicking effect where the tangent of the flange and the tread meet. Asked specifically as to the manner of correcting false flanging, he said he would use manganese steel with 12 per cent manganese and would apply it in the same way as he had described in the case of the improvement of the flange. Mr. Wanamaker said that with a weld of this type the wheels should, he believed, give better service than ever and would show less false flanging than before.

A report was then read written by J. S. Shepherd, chairman of the Committee on Specification of Equipment, in which the other members of the committee had not had an opportunity to collaborate. Mr. Shepherd said that the demands on motors were more constant at coal mines than at steel mills, and that consequently a motor that would stand a 25 per cent overload without rising in temperature over 50 deg. F. in two hours would be perfectly well suited to mine conditions.

Make Motor Conforming to Foreign Standards

Mr. Wanamaker remarked that the reason for changing from a specification calling for an increase of temperature less than 40 deg. F. for a two-hour period of 25 per cent overload to one requiring a rise of less than 50 deg. in that length of time was that the American manufacturers desired to standardize on a motor that would meet European specifications in export trade. He did not believe that we were getting any too good a motor as it was. In fact he believed the motor manufacturers were not providing for sufficient natural ventilation of their motors and were calling on the purchaser to use fans at an expenditure of power to make up for this defect. He added that manufacturers said that if it was desired to obtain the results now obtained with the 40-deg. motor the purchaser should buy a 50-deg. motor of the next size larger, but he could see no reason for this.

Roscoe Woltz said that he had had difficulty in getting present motors to stand up under working conditions and had specified specially impregnated wirings, and since these had been provided he had had no trouble.

E. D. Knight explained that by using a size larger than now used it would be possible with a 50-deg. motor to get the same results as with a 40-deg. motor such as now specified. This 50-deg. motor operating at normal load would run indefinitely and not for two hours only without excessive heating, so that the slightly increased price possibly would be justifiable. He was not clear what was the right course to pursue.

Mr. Edwards said he had favored the change in rating but was now in some doubt. It was finally agreed to form a committee to study the matter in detail. The American Society of Mechanical Engineers has a committee with Mr. Wanamaker as chairman studying the matter of specifications for motors. The American Railway Association also is interested.

Officers to Take Charge in the Coming Year

In the business meeting J. H. Edwards, of Huntington, the retiring president, was re-elected. E. D. Knight, of Kayford, was made vice-president. M. A. Maxwell was made a member of the executive committee in place of Louis Hill, of Winding Gulf, whose term had expired. The executive committee will consist of J. H. Edwards, Huntington, W. Va.; E. D. Knight, Kayford, W. Va.; W. R. Harler, Eccles, W. Va.; J. J. Fluck, Huntington, W. Va.; J. S. Shepherd, Omar, W. Va.; C. H. Tyler, Sharples, W. Va.; J. B. Pennman, Deegans, W. Va.; R. R. Webster, Weeksbury, Ky., and M. A. Maxwell, Huntington, W. Va. Herbert Smith was re-elected secretary-treasurer. With this the meeting adjourned to assemble in Huntington again next autumn.

Reduce Compensation Rates in Pennsylvania

REDUCTION of compensation insurance rates as they affect coal mining companies is announced by the State Insurance Department of Pennsylvania as a result of the recent statistical survey made by E. H. Downey and other Pennsylvania rate experts.

Investigation by the department shows improved conditions and a much better experience in the insured mines, compared with 1916. In that year the insurance rate of the State Bureau for workmen's compensation was $3.83 for bituminous mines and $4.64 for anthracite mines. The 1922 rates will be $2.25 for soft and $3.25 for hard coal.

Problems of Operating Men

Edited by James T. Beard

Use and Abuse of Booster Fans

Booster Fans a Proper Resort in Cases of Emergency—Present Abuse of the Practice Will Make Necessary the Enactment of Laws Restricting Their Use in Mines

MANY thoughts have been aroused, in my mind, by the reading of the editorial entitled "Booster Ventilation Problems," *Coal Age*, Aug. 11, p. 204. To my way of thinking, it is strange that the use of a booster fan in a mine should be advocated or recommended under any conditions except as a last resort.

The suggestion that the booster, in mine ventilation, has much to commend its use from an economical standpoint may be admissible in certain extreme cases where the ventilation is poor in a mine or section of a mine that is about to be abandoned, and installing a booster for temporary use will avoid incurring the expense of a larger fan at the surface.

Aside from such extreme cases, however, the intimation that, with proper safeguards against the intermittant action of a booster, located as it is in a mine where it is unattended, the ventilation by that means may be safer than by a single fan is unthinkable. I am not surprised that the editor adds, "though about this, opinions may differ."

Personally, I am opposed to the use of underground fans of any description and have often heard it remarked that if operators continue the present practice of installing boosters in mines, except as a dire emergency, it will result in the enactment of laws restricting and defining their use.

Conditions the War Imposed

There is no doubt that, under prewar conditions and the extraordinary demand for coal, many mines were opened and worked under inadequate equipment, in order to supply a public necessity. It goes without saying that our laws should make proper provision for these cases, in order that no injustice may be done to operators who acted in the public need, at a time of danger.

Mining men will not deny that an underground installation, particularly that of a booster fan, will seldom receive proper attention. Experience has shown that, owing to one cause or another, the continuous action of a booster is very uncertain. For that reason, some boosters have been equipped with automatic starters that enable these fans to start again, after a brief period of idleness.

No argument is required to show that a booster equipped with a self-starter is dangerous. During the short period in which the fan is idle for lack of current, gas may accumulate and be ignited at the commutator when the current is again turned on and the machine starts.

I have heard of an instance where the gas had to be brushed from around a booster fan, before it was safe to start the machine. What would such a condition develop if the booster was equipped with a self-starter and the current turned on when it was necessary to operate the fan, but without taking the precaution to first examine the place and see that it was safe to turn on the current.

Five Boosters in One Mine

In a mine where I was employed, there were five booster fans. As the mine worked three shifts, the proper attention to these boosters would require fifteen attendants to devote much of their time in looking after them, the fans being located in different sections of the mine. Under normal conditions, this added expense would soon decide the fate of such a mine and the scheme would be pronounced impracticable.

Different schemes have been devised to warn the mine officials of any failure of a booster fan to operate, and thus avoid the expense of its continuous attendance. Such warnings, however, have often passed unnoticed as the ticking of a clock and, in fifteen minutes time or less, there is trouble.

In some instances, I have known booster fans to be displaced and even wrecked by the firing of shots. What might be expected to be their condition following an explosion in the mine? Of what service would these fan be in the subsequent attempts to restore ventilation in the sections they control?

The editorial to which I have referred, very properly mentioned the dread of mine inspectors for this type of installation in mines in their districts. This dread is not limited to the mine inspectors, but is shared to a large extent by every one concerned and whose fears are not unfounded.

A full discussion of this subject would occupy more space than is available. It will be asked, what is the remedy for conditions that invite the use of a booster fan in a mine? My answer is, plan the mine for a good system of ventilation, giving to each district a separate air split and its full quota of air. Most important of all is the building of stoppings, doors, overcasts and brattices that do not leak but conduct practically the entire air volume to the working faces.

Linton, Ind. W. H. Luxton.

Safety in Electric Lamps

Electric lamps save six out of seven men when gas explodes in a mine—Weight of battery a hindrance in use of the lamp—Suggested improvements.

REGARDING safe practices in gaseous mines, Robert A. Marshall refers to the use of electric mine lamps, in reply to the objections offered by a previous writer, who claimed that the lamp will not detect the presence of noxious gases in mines. The letter of Mr. Marshall, which appeared in *Coal Age*, July 21, p. 101, interested me deeply and recalled an experience that I shall never forget.

While the electric lamp has some disadvantages, these are much outweighed by its many points of superiority over the gauze safety lamp. That is not to say, however, that the gauze lamp must give place wholly to the electric lamp, in the operation of a gaseous mine, where its presence is still necessary for use of firebosses and safety inspectors.

Electric Lamps Save Six Men

Only last summer (1920) I was called upon to assist in restoring the ventilation in a mine where much damage had been done by an explosion of gas on the main haulage road. The explosion was caused by the sparking of the trolley of the mine locomotive.

The blast killed the motorman and seriously burned the night foreman, who was nearby at the time. Had it not been for the fact that the men, including the foreman, all used electric cap lamps, none of the seven at work in the mine at the time would have escaped alive. As it was, six of these men were able to find their way out.

In this instance, the electric lamp proved a good friend. It was not extinguished, as a gauze lamp would have been, by the force of the explosion. After this occurred it would have been suicidal or impossible to have attempted to relight an extinguished lamp, and the foreman would have found himself in the dark and helpless.

Although he was seriously burned and the flesh hung loose from his hands

and arms, the night foreman realized that he had five men working inside and in peril of their lives. With great fortitude he rushed forward and succeeded in reaching the places where they were working at the extreme end of the mine.

All of these men owe their lives, not only to the bravery of the foreman, but to the fact that he and they were using electric cap lamps, which continued to give light on their way out of the mine. The place is known as one of the most hazardous operations, I believe, in the state and it is the general opinion that the use of electric lamps in this mine has rendered its operation safer.

Dangerous Practice Permitted

While the mine is equipped throughout with electric lamps and careful experienced foremen and firebosses are employed, the gauze safety lamp is still in use by these officials in their examination of the mine. The ventilation is good and while the men are permitted to use the carbide lamp, if they choose on reaching their working places, they travel in and out of the mine by the light of their electric lamps only.

The last statement may seem strange to any one unacquainted with the particular conditions in this mine. Some of the men employed there prefer to use the carbide lamp in their work and have been permitted to do so, the practice not being thought dangerous. Regarding that matter, there may be some difference of opinion.

There are, I admit, some things about the electric lamp that give rise to a preference for the carbide light with some men. I would not like to repeat the profane language I have heard used in the lamphouse when miners were trying to hitch up a suitable cable and battery for their use, before going into the mine.

There are perhaps twenty or thirty cables and batteries in a rack. The man who gets there first has his choice of these; but the late comer who has to take what is left often expresses himself in a manner that is not calculated to recommend the use of the electric lamp to one who has not experienced its many advantages.

Individual Electric Lamps to Avoid Difficulty

In this connection, let me suggest that it would be a great improvement if each lamp and cable was numbered and each miner had his own outfit and was made responsible for its proper use. Any fault to be found with the lamp, cable or battery would then be promptly reported to the proper authorities and the trouble remedied.

Much of the trouble in the use of the electric lamp is due to the ignorance or carelessness of the workman who uses it. To overcome these difficulties requires greater system in the handling of the lamps and their distribution to the men. Naturally, a man will take better care of a lamp that he knows he must use again the following day.

Another difficulty often experienced in the use of electric lamps is the gradual failing of the light toward the end of a shift. This may be due to defective batteries or the fact that they are not sufficiently charged to enable them to give a good light up to the end of the shift. Working with a poor light is both dangerous and costly.

Another point worthy of consideration is the weight of the battery. At present, some of these are bulky and cumbersome. A short time ago I overheard a remark made by a man who had put in a hard shift mixing cement, and said that he thought his battery weighed at least 20 pounds.

I have often wondered if it would not be better to use smaller batteries and more of them. Then, each man could take with him into the mine, in the morning, two or three of these batteries and use them to replenish his light as needed, much as a miner refills his carbide lamp. This would relieve the worker of the extra weight.

Linton, Ind. W. H. Luxton.

Locomotive Should Pull the Trip

Danger stalks where locomotive is pushing a loaded or empty trip. In safe practice locomotive operated to pull all trips.

Referring to the inquiry of S. A. Bowes, *Coal Age*, June 30, p. 1165, allow me to advise that he should arrange to pull all trips, as a general working proposition, if this can be done by any reasonable possibility.

Saying nothing about the wear and tear on tracks, wagons and motor when the latter is made to push loaded or empty trips, in a mine, my experience has taught me that such practice is a most blindfolded system and should never be employed where it is possible to do anything else.

Red lights, white lights, clanging gongs and other alarms will form no safeguard against accident when the motor is operated at the tail end of a trip and the cars are pushed ahead of the machine.

Any kind of obstruction, such as a chunk of coal, a broken rail or a misplaced switch will cause a wreck that may put the entire working system out of commission, and nothing will prevent this from happening when the motorman is where he can have no knowledge as to the track being clear ahead of him.

Imagine what will take place when a locomotive is pushing a thirty-wagon trip, empty or loaded, and a single car jumps the track. It may be the head car in the trip or one a short distance back. The speed is probably six or eight miles an hour and, before the motorman is aware, the cars are piled up so as to practically choke the entry.

Timbers are torn out, much roof falls and the ventilation is cut off. To make matters worse the locomotive is on the inby side of the wreck, and it may be the only machine available in the mine. Perhaps the mine is generating some gas and, if so, the stoppage of the ventilation on the main airway and haulage road will quickly create a dangerous situation in the workings.

Having been caught in just such a trap myself, in what was then one of the largest mines in western Pennsylvania, I fully realize the danger involved when a haulage system is arranged for the locomotive to push the trips, either loaded or empty. Sooner or later the unavoidable will happen and the mine will be thrown idle, or a worse accident result.

Wreck Occurs When Locomotive Pushes Loaded Trip

In the instance last mentioned, a ninety-wagon, loaded trip was being pushed out of the mine by a steam engine. The wreck completely closed the passageway and the engine being on the inby side there was no power available for disentangling the cars, except a bull chain. The mine was generating gas and, under normal conditions, was ventilated by a current of 90,000 cu.ft. per min., circulating under a 2½-in. water gage.

The lesson taught by that accident I shall never forget. It will explain why I favor a haulage system in which the locomotive pulls but never pushes a trip, whether going out of or into the mine. It will not be thought strange that no arguments can persuade me to employ any other system than one where a mine locomotive is operated to pull all trips.

This statement, of course, applies only to a general working proposition, in the arrangement of a haulage system, in a mine. Conditions out of the ordinary may often require that a locomotive push a trip of cars for a short distance or for a brief period of time. In such cases, however, extra precautions should be taken to avoid accident.

Gans, Pa. R. W. Lightburn.

ANOTHER LETTER

Kindly allow me to add a few words to what has already been said in reply to the question of a locomotive pulling or pushing a trip of cars in a mine. From my own experience, I am convinced that no system of mine-locomotive haulage can be conducted successfully where the locomotive is required to push either the loaded or the empty trips.

Some may claim that, theoretically, the resistance to traction is the same whether the locomotive is pushing or pulling the trip; but in actual practice this is not true. When a trip of cars is pushed ahead of the locomotive the carwheels do not adjust themselves readily to any irregularity of the track, which creates a tendency to derailment of the cars.

Many times, I have watched the effect of the locomotive pushing a trip, and observed that there is always a sluing action that tends to swing the cars across the track. The result is that, especially when rounding a curve, the forward right-hand or inner carwheel and the hind left-hand or outer car-

wheel both hug the rails closely. Under this condition the forward wheel tends to mount the rail at any irregularity caused by a loose joint or a lack of alignment.

This condition is greatly aggravated when the cars are equipped with side bumpers. In that case, the force is applied wholly to the inner bumper when rounding a curve. The same is true, but to a less extent, on a straight track when a wide gage or a worn axle gives rise to a greater sluing of the car. There may even result the interlocking of the bumpers.

Should it become necessary to stop a heavy trip, on a more-or-less sharp curve, when the locomotive is about to enter the curve the strain on the drawbars is almost sure to derail one or more cars, especially if the weight of a long trip is out of proportion to the weight of a single car.

Calculating Weight of Locomotive

One correspondent, writing on this subject in *Coal Age*, Aug. 18, p. 261, has attempted a calculation to determine the size of locomotive required for the output in question (2,400 tons, in an 8-hr. shift). In this calculation, he assumes a track resistance of 30 lb. per ton and estimates a drawbar pull or push, at the locomotive, when hauling a trip of 120 tons, to be 120 × 30 = 3,600 lb., or 1.8 tons. He concludes that the weight of locomotive required would then be 5 × 1.8 = 9 tons.

It is a question in my mind whether such a calculation would meet the conditions in practice, unless it is known that the track resistance does not exceed the estimated 30 lb. per ton. If there are grades to be overcome and short curves, this resistance may be much increased and a heavier locomotive will be required.

Referring to the difficulty mentioned in the original inquiry, where it is required to push the cars into a rotary dump in order to avoid running the locomotive through the dump, allow me to suggest making arrangements to shunt the locomotive to the end of the trip, so that the cars can be pushed onto the dump, as required.

In a mine where I have worked there was a run-around track provided for shunting the locomotive, so as to allow the locomotive to pull the empties back into the mine, after having pulled the loaded cars to the shaft bottom. Where there is not sufficient grade to feed the dump by gravity, two locomotives should be employed, so that one can feed the dump while the other is making a trip into the mine.

In closing, allow me to refer to a safety rule of at least one large coal mining company in Alabama, where keen interest has always been taken in the safety of mine employees. The rule reads as follows: "No motorman shall push cars, unless with the permission of the mine foreman." This rule was made soon after the death of a trip-rider, who was killed in a wreck that occurred while a trip was being pushed.

Bayview, Ala. JOHN WALLS, SR.

Ruling of Examining Board in Conflict with Law

The law authorizes examining boards to formulate rules governing the examination, but requires rating candidates on both oral and written work.

RECENTLY a correspondent, who signs himself "Fairplay," *Coal Age*, Aug. 25, p. 300, questions the right of the examining board in charge of the inspectors' examination, held a short time since, in Pittsburgh, Pa., to make a ruling that candidates who should fail in the written examination would not be given the oral questions, which the law distinctly specifies.

Reading the paragraphs he has quoted as taken from the Bituminous Mine Law of Pennsylvania, one is led to believe that the lawmakers contemplated giving to each candidate both a written and an oral examination, inasmuch as it is stated that the oral examination shall be reported, verbatim and typewritten to assist the board in its rating of the candidate.

In my opinion, the board took an unfair advantage in availing themselves of the privilege granted them by law to formulate their own rules for conducting the examination. In ruling that a candidate who should fail in his written work would not be given an oral examination, the board deprived such a candidate from any advantage he might have in the oral test.

It is well known there are many men who can answer questions verbally and would make good mine inspectors, yet they are unable to put their ideas in writing so as to pass a satisfactory examination on paper. If the same questions were asked in an oral examination, they would probably be able to explain their meaning fully to the satisfaction of the board.

Again, inasmuch as the ruling of the board, in this case, affected only those candidates who should fail in the written examination, it discriminated between the candidates in the final rating. In order to treat all candidates equally fair, it is my opinion that there should be no discrimination and each man should be given the full test required by the law.

Judging from an unprejudiced standpoint, it would seem that the lawmakers had in mind the rating of a candidate's qualifications on the results of both a written and an oral test. But setting this aside, the board decided to pass on each man's qualifications prematurely, by examining his written work before applying the oral test.

My conclusion is that where the law specifies both an oral and written test, as it does in this instance, the oral examination should be given before the written work is examined, particularly where the rating is to be based, as in this case, on the results of each test.

Farr, Colo. ROBERT A. MARSHALL.

Inquiries Of General Interest

Ventilating Two Seams by a Single Fan

Difficulty Experienced in Ventilating Two Seams of Coal When Starting Development Work in the Upper or Overlying Seam — Shaft Sunk Connecting the Two Seams Gives Unsatisfactory Results

WHEN starting operations on our property it was decided to work the lower of the two seams underlying the tract, before opening the upper seam. Having in contemplation the working of that seam at a later period, however, we installed a reversible fan capable of producing 150,000 cu.ft. of air per minute.

Work progressed well in the lower seam and some time ago it was decided to begin operations in the seam above. Everything went well until the development had progressed to that stage that the upper mine demanded more attention in respect to its ventilation.

After some investigation, we concluded to sink a shaft to connect the two seams, for the sole purpose of ventilation. The size of this shaft was 5 x 10 ft., in section, and it was sunk to a depth of 260 ft. We confidently expected that the completion of this shaft would enable us to ventilate the two seams by means of the large fan already installed and in operation, which would avoid the expense of setting up another ventilator.

Much to our dismay, however, the results were far from satisfactory. We first tried running the fan as an exhaust, as formerly; but this proving unsatisfactory the circulation was changed and the fan operated as a blower. Again we were doomed to disappointment as the change showed no improvement in the circulation of the air in the two mines.

As far as we were able to judge, there appeared to be an air column, or a certain atmospheric condition, that controlled the direction and the course of the air, which we desired to circulate in each of the mines. Further than this, however, we were unable to determine what the difficulty was or its proper remedy.

I want to ask, here, what would be the effect of installing a small fan in the upper seam and operate it either

as a blower or as an exhaust fan. The idea would be to have this smaller fan work in conjunction with the main fan and assist in diverting some of the air into the upper seam.

MASTER MECHANIC.

Salt Lake City, Utah.

This correspondent has not given sufficient data to enable us to reply intelligently. It is not stated whether the shaft sunk to a depth of 260 ft. was started from the surface, or only sunk from the upper to the lower seam. We will assume, however, that this second shaft was started from the surface and sunk through to the lower seam.

Again, it is not clear how the lower seam was ventilated before this extra shaft was sunk. Very much will depend on these arrangements, as well as on the relative depths of the two seams below the surface, the amount each seam is developed and the means taken to direct the air current and distribute the air proportionately between the two mines.

In attempting to ventilate two seams by a single fan located at the top of a shaft connecting the seams, there being a second shaft sunk from the surface, which also connects the seams, it is quite possible, if the upper seam lies at a comparatively shallow depth and the lower one is much deeper, that an air column in the upcast shaft would cause most of the air to circulate through the lower seam.

On the other hand, conditions may favor the circulation through the upper mine, owing to a lesser development in that seam providing shorter aircourses and a less resistance to the flow of air, than in the larger development below. Again, the relative size of the air-courses in the two mines, owing to one of the seams being thicker than the other, or to any obstruction in the airways, or to the possible presence of gob fires heating the air current—these will each and all have their effect on the desired distribution of the air between the two mines.

Certain it is, however, that if this fan is capable of producing an air volume of 150,000 cu.ft. per min., say against a 1½- or a 2-in. water gage, there should be experienced no difficulty in ventilating the two mines by means of the same ventilator.

To do this, however, will require practical experience in handling air currents in mines, under varying conditions, such as we have suggested. We cannot endorse the idea of installing a small booster fan in the upper seam, as mentioned by this correspondent. On general principles no fan should be permanently installed underground where it cannot be reached in emergency.

Examination Questions Answered

Miscellaneous Questions

(Answered by Request)

QUESTION—*A sump in a mine is 72 ft. long, 25 ft. wide and 12 ft. deep; it is full of water. How long will it take a 6-in. pump to empty this sump, running at a speed of 100 ft. per min., if the efficiency of the pump is 80 per cent?*

ANSWER—The cubic contents of the sump is $72 \times 25 \times 12 = 21{,}600$ cu.ft. Allowing a water-end efficiency of 80 per cent, the discharge of this pump, running at a speed of 100 ft. per min., is $0.80 \times 100(0.7854 \times 0.5^2) = 15.7$ cu.ft. per min. The time required to empty the sump is, therefore $21{,}600 \div 15.7 = 1{,}375+$ min., or 22 hrs. 55 min.

QUESTION—*Name the different means used for producing ventilation in mines.*

ANSWER—The circulation of air in mines is produced, mechanically, by different types of centrifugal fans; or by disk fans, which act by propelling the air by the force of the inclined blades; and by different forms of steam jets. Air currents are also created by artificially heating the air, by means of a furnace located at or near the bottom of the upcast shaft. Natural ventilation results from the natural heat of the air, producing an air column in a shaft or slope. At other times, use is made of a waterfall in a shaft, or a wind cowl erected at the surface to direct surface winds into the mine.

QUESTION—(*a*) *How many aperatures are there in a square inch of the standard safety-lamp gauze?* (*b*) *What is a safety lamp and how is it made or constructed?*

ANSWER—(a) The standard mesh of safety-lamp gauze, in this country, contains 784 openings to the square inch. The mesh is formed by 28 steel wires, No. 28 B.w.g.

(b) A safety lamp, for use in the mine, is one in which the flame is isolated from the air surrounding the lamp, by means of a chimney and all openings to the lamp are protected by wire gauze through which the air must enter and leave the lamp. It is constructed by surmounting the oil vessel of the lamp with a chimney that completely isolates the flame from the outside atmosphere.

The Davy lamp has a chimney wholly of wire gauze. In the Clanny and other types of safety lamps a glass cylinder surrounds the flame, forming the combustion chamber, which is surmounted by a gauze chimney. The chimney and the lamp are connected by brass standards having a cap or shield at the top to which the handle of the lamp is attached.

QUESTION—*What maximum height should there be between a pump and the surface of the water in the sump, the barometer being 30 in?*

ANSWER—A common rule is to allow a maximum height, in feet, equal to 0.9 of the barometric height, in inches. For a barometer reading of 30 in., the suction head of a pump should not exceed $0.9 \times 30 = 27$ ft. Where the suction line is inclined and of considerable length, or contains elbows that obstruct the flow, the suction height must be much less than this amount.

QUESTION—*What danger is there to a mine having a fireclay bottom, when a large quantity of water is allowed to accumulate in the workings?*

ANSWER—Water causes a fireclay bottom to swell and heave, which not only raises the track and reduces the headroom on the roads, making it necessary to brush the roof or lift bottom, but renders the mining of coal more difficult. The soft bottom will often induce a squeeze, to avoid which a greater width of entry and room pillars is required and the cost of yardage for driving crosscuts and breakthroughs is increased.

QUESTION—*How would you determine when the coal dust in a mine requires more moisture in order to render it safe from explosion hazard?*

ANSWER—Experiments on the inflammability of fine coal dust, by the Federal Bureau of Mines, have shown that to remove the danger of the dust being blown into the air by a concussion it must be so wet as to be plastic when molded in the hand. In that condition the dust will contain 30 per cent of its own weight of water. The practical test, therefore, to ascertain if the dust in a mine is a hazard in respect to explosion is to wet it till it becomes plastic in the hand.

QUESTION—*Name two or more methods of applying moisture to coal dust in a mine.*

ANSWER—Probably the most effective method of moistening the dust accumulated on the roads and timbers in a mine is to install a pipe sprinkling or spraying system, and use it to keep the dust wet enough so that it will not be raised and float in the air. Another less effective method is to introduce steam into the intake air current in sufficient quantity to fully saturate the current, which will reduce to some extent the absorption of moisture by the ventilating current and the consequent drying out of the mine. The amount of water thus carried into the mine and deposited will depend on the relative temperatures of the outside and the mine air. Still another method is to sprinkle the roads and working places with water from a watering car, at regular brief intervals.

Coal Consumption by Utilities Stationary; Use of Oil Fuel Gaining

CONSUMPTION of coal by electric utility plants has been around 2,400,000 net tons per month since last March, when it was 2,641,588 tons. It is significant, perhaps, that while the volume of coal consumed by these utilities has remained practically stationary since April, the consumption of fuel oil by the same plants has increased from 848,866 bbl. in March, 843,193 bbl. in April, 853,519 bbl. in May to 918,768 bbl. in June and 1,029,251 bbl. in July, or a gain of 21 per cent in five months for the chief competitor of coal.

COAL CONSUMED BY PUBLIC UTILITY POWER PLANTS, MARCH-JULY, 1921
(In Net Tons)

States	March	May	June	July
Alabama	8,050	13,335	27,798	20,734
Arizona	575	150	0	0
Arkansas	12,324	11,344	9,874	10,298
Colorado	28,654	26,654	22,587	28,018
Connecticut	50,438	48,382	56,829	53,615
Delaware	7,895	6,657	6,173	6,238
District of Columbia	19,572	18,768	18,067	18,948
Florida	1,926	2,003	1,806	1,902
Georgia	6,549	5,943	7,325	6,971
Illinois	334,651	304,535	302,094	306,562
Indiana	158,590	144,864	142,337	144,274
Iowa	75,141	64,381	62,420	63,399
Kansas	30,836	21,441	20,329	18,221
Kentucky	39,950	38,438	38,712	38,725
Louisiana	11,917	9,338	9,818	10,178
Maine	104	198	233	318
Maryland	16,586	18,210	27,789	26,112
Massachusetts	103,130	93,453	104,135	99,426
Michigan	111,136	106,917	114,679	118,915
Minnesota	40,437	23,914	23,884	31,956
Mississippi	10,785	9,312	9,969	9,850
Missouri	95,948	87,260	84,327	79,596
Montana	3,799	3,556	3,500	3,787
Nebraska	35,186	31,808	33,315	35,432
Nevada	176	117	127	130
New Hampshire	2,314	2,682	4,146	3,100
New Jersey	96,130	92,715	89,786	97,273
New Mexico	3,664	2,406	2,186	2,123
New York	360,255	338,960	332,044	345,496
North Carolina	7,493	6,827	7,214	8,722
North Dakota	14,716	12,099	11,792	13,092
Ohio	284,825	244,065	248,698	257,710
Oklahoma	5,172	3,968	3,743	2,904
Oregon	120	65	0	0
Pennsylvania	409,437	384,664	367,976	344,727
Rhode Island	11,546	9,607	8,323	8,447
South Carolina	9,288	6,581	7,545	7,768
South Dakota	6,690	5,542	6,413	7,383
Tennessee	21,136	18,234	19,745	18,884
Texas	20,034	18,458	18,426	19,304
Vermont	181	14	216	580
Virginia	32,932	32,111	36,764	40,540
Washington	3,219	2,542	2,199	2,180
West Virginia	81,675	89,425	89,217	86,721
Wisconsin	58,504	46,334	43,103	49,558
Wyoming	7,902	6,732	6,398	6,523
Totals	2,641,588	2,415,009	2,434,061	2,453,640

New England and the South show increases in fuel-oil consumption. This is especially true in Kansas, Arkansas, Oklahoma, Nebraska and New Mexico. The latter are in or near the Western oil belt and coal men in that section have for several months been experiencing the sharpest kind of competition from the oil trade.

FUEL OIL CONSUMED BY PUBLIC UTILITY POWER PLANTS IN NEW ENGLAND, MARCH-JULY, 1921
(In Barrels)

States	March	April	May	June	July
Connecticut	1,094	993	1,929	3,196	2,734
Maine	1,188	1,327	1,263	2,095	2,250
Massachusetts	29,764	23,039	25,848	25,990	25,731
Rhode Island	48,294	43,763	53,941	91,391	76,123
Vermont	.....	.....	.....	1,100	2,029
Totals	80,340	69,122	82,981	123,772	108,867

FUEL OIL CONSUMED BY PUBLIC UTILITY POWER PLANTS IN THE SOUTH, MARCH-JULY, 1921
(In Barrels)

States	March	April	May	June	July
Alabama	8,630	9,192	8,283	6,293	7,158
Arizona	16,001	22,437	17,009	18,496	14,984
Florida	61,717	55,495	55,879	52,865	51,506
Georgia	24,100	20,082	24,310	22,742	22,416
Kentucky	225	297	290	285	273
Louisiana	39,872	46,652	46,495	41,602	42,833
Mississippi	7,217	9,006	10,786	10,656	10,455
Missouri	7,989	7,289	8,075	24,615	31,600
North Carolina	270	190	140	146	118
Totals	166,021	170,640	171,267	177,700	181,343

The decrease in coal consumption in July as compared with March—188,000 tons—is more than offset by the increase in the amount of fuel oil used—180,000 bbls.—on the basis of 3½ tons of coal as the equivalent of 1 bbl. of oil. This would indicate a lesser degree of fuel efficiency during July than was obtained in March, as the rate of production of electric power during those two months was practically unchanged, amounting to 2,049,480 thousands of kilowatt-hours in March and 2,043,197 in July.

Frelinghuysen's Views on Coal Legislation Unchanged; Newton Bill Too Drastic

SENATOR FRELINGHUYSEN returned to Washington after the congressional recess without having determined upon any change in his policy as to coal legislation. He expects to watch developments closely and be in readiness to call up his coal-stabilization bill at any time likely to be opportune for its passage or when its discussion might tend to correct any trend of the coal situation against the public interest.

Statements that the bill of Representative Newton, of Minnesota, will be given consideration in the near future could not be substantiated at the Committee on Interstate and Foreign Commerce, to which the bill was referred. The Newton bill, a composite of the Calder and the LaFollette bills, is drastically regulatory and members of the committee expressed the opinion that the measure is not being seriously considered.

Manufacturers Endorse W. Va. Operators' Refusal to Deal with Miners' Union

THE National Association of Manufacturers issued a bulletin on Sept. 22 upholding the coal operators of West Virginia in their refusal to deal with the United Mine Workers. After presenting statistics to show that non-union miners in West Virginia receive higher wages than in the Kanawha union field in West Virginia the manufacturers' bulletin says of the activities of the United Mine Workers: "The present effort is not for the raising of wages. It has another and more sinister purpose, the suppression of West Virginia coal output to enable operators of the Middle West to retain Western markets and thus insure the retention of closed shop control of their mines."

Operators of the Middle Western states and officials of the United Mine Workers are quoted to support the claim that "the United Mine Workers had guaranteed to the operators that competition from West Virginia mines able to produce and sell for less would be removed."

Past efforts of the United Mine Workers to establish the closed shop in the principal West Virginia fields, however, have proved unavailing, it is declared. The Middle Western operators are said to have continually complained that the United Mine Workers was not removing West Virginia competition, as it had agreed. "Faced with loss of trade or with bankruptcy the unionized operators have threatened abolition of closed-shop union agreements unless the United Mine Workers can eliminate the competition from West Virginia."

The National Association of Manufacturers then declares that "the United Mine Workers now attempts to forcibly unionize the West Virginia mines in order to raise their cost of operation and save its ebbing control in the mines of the Middle West." The manufacturers also charge that "the United Mine Workers does not observe contracts where made." In support of this statement it quotes John R. Lawson, a union official; Governor Kilby of Alabama and Woodrow Wilson.

It is further alleged that "violence and disregard of the law is condoned by the United Mine Workers." Several specific instances are mentioned in support of this allegation. "Eleven Arkansas members of the United Mine Workers pleaded guilty to various offenses against the state and national laws, one of them having gone so far as to threaten the life of a federal judge if he did not decide as the miner desired. The union paid the fines of all these men and rewarded most of them by elections or appointments to union offices."

National Industrial Traffic League Demands Reduction of Freight Rates

At a largely attended meeting held in Chicago, Sept. 23, the Executive Committee of the National Industrial Traffic League adopted resolutions demanding a reduction in freight rates as indispensable to a return to normal business conditions. The association has sent out a circular to its membership stating that it is the hope of the executive committee that all commercial organizations and individual members will endorse the action taken by the league and take such steps as they can to bring about public sentiment in favor of these recommendations. It is especially desirable, the circular states, that commercial organizations adopt similar resolutions and transmit them to the officials of the carriers serving their respective communities.

The resolutions were as follows:

"It is a matter of common knowledge that there exists at the present time a very general depression in almost all lines of business. Purchases are restricted to a hand-to-mouth basis. Most manufacturers are running on part time. Many industries are completely closed. Labor throughout the country is idle, and in many communities there is actual suffering as a result of this business depression.

"A study of readjustment processes indicates that the price of practically every commodity has been heavily reduced. Freight rates, which are such a large factor in our industrial fabric, have not been readjusted, but remain at the highest level in history. Manifestly, there can be no return to normal business conditions until the price of transportation bears a proper relation to commodity values. The business of this country has been developed and a wide distribution of commodities encouraged under freight rates that bore a proper relation to the price of the commodities, and until rates are readjusted so as to approximate such a level it is obvious that business confidence cannot be restored.

Expenses Increase More Rapidly Than Revenues

"In 1920 the operating revenues of all railroads in the United States were one billion dollars greater than in 1919, and the operating expenses were one and one-half billion dollars greater. In 1920 the net railway operating income of all roads, i. e., the entire amount available for the payment of interest and dividends, was only sixty-two million dollars as compared with an average of nine hundred million dollars for each of the five preceding years.

"In addition to large increases made in wages and the number of employees during the period of Federal control, so-called national agreements were adopted, which are responsible for a large part of the increase in operating expenses, since they restrict employees in the discharge of their duties and require the employment of skilled labor in the performance of work previously performed by unskilled labor.

"The national agreements are still in effect, and their abrogation is uncertain. On April 14, 1921, the Railroad Labor Board announced that these agreements would be abrogated on July 1; but subsequently the board reversed its decision.

"The failure of the railroads to reduce their operating costs is one of the principal factors in the present economic situation. The carriers are hampered by the policy and slowness of action of the Railroad Labor Board. Any condition which prevents the employer and employee from dealing directly with each other is bad and is a fertile field for dissensions. It is not fair to the carriers nor to the public that the railroad employee should be given preference over other employees performing work of a similar nature in private industries, and until the railway employees are placed upon a corresponding basis with those of private industries it cannot be said that the railroads are efficiently or economically operated.

"The executive committee of the National Industrial Traffic League, after careful consideration of the transportation problem and the present business and economic situation, is of the belief that the return to normal business conditions requires:

"First: Recognition of the fact that efficient and economical operation of the railroads depends primarily on the payment of wages by the railroads no higher than prevail in other lines of industry for similar work.

"Second: A general reduction in freight rates equal at least to a decrease in operating expenses brought about by a readjustment of wages on a just and equitable basis.

"Third: That the carriers should immediately proceed to readjust both wages and rates so that such reductions may take effect simultaneously.

"RESOLVED, therefore, by the executive committee of the National Industrial Traffic League, that it demand of the railway executives that they abrogate immediately the so-called national agreements, made effective during the period of Federal control, and which, in its opinion, expired with the return of the railways to private management; and be it further

"RESOLVED, That it demand of the railway executives that wages of railway employees be adjusted upon the basis of wages paid to similar classes of labor in private employment and simultaneously with such adjustment, a horizontal reduction in rates at least equivalent to the amount of wage reductions be established; and be it further

"RESOLVED, That a copy of these resolution be sent to the Association of Railway Executives, members of the Interstate Commerce Commission, and given to the public through the medium of the press."

Destination of Lake Cargo Coal During Season to End of August

DISTRIBUTION of bituminous Lake cargo coal during the present season and the corresponding periods in 1919 and 1920 is shown in the accompanying table, compiled by the Geological Survey. For comparative purposes, the year 1919 offers the better standard. Shipments during 1921 to Aug. 31 totaled 15,841,000 net tons, of which 78.4 per cent went to American ports and 21.6 per cent to Canadian destinations. Of the total, 12,412,000 tons were forwarded to American points, an increase when compared with the record for 1919 of 133,000 tons, but relatively a smaller proportion than in the earlier year. Shipments to Canadian ports were 3,429,000 tons, an increase over 1919 of 387,000 tons.

DESTINATION OF CARGO COAL DUMPED AT LAKE ERIE PORTS FROM OPENING OF SEASON TO AUG. 31.

	1919		1920		1920	
Destination	Net Tons	Per Cent	Net Tons	Per Cent	Net Tons	Per Cent
American						
Lake Superior ports	6,942,000	45.3	4,228,000	39.7	7,890,000	49.8
Sault Ste. Marie and river points.	216,000	1.4	355,000	3.3	202,000	1.3
Lake Huron-Georgian Bay ports...	202,000	1.3	118,000	1.1	97,000	0.6
Lake Michigan ports.....	4,654,000	30.4	2,495,000	23.4	3,887,000	24.6
Port Huron and Detroit River...	209,000	1.4	484,000	4.5	313,000	2.0
Lake Erie ports....	56,000	0.3	20,000	0.2	23,000	0.1
Total American.	12,279,000	80.1	7,700,000	72.2	12,412,000	78.4
Canadian						
Lake Superior ports	1,094,000	7.1	797,000	7.5	1,597,000	10.1
Sault Ste. Marie and river points.	496,000	3.2	674,000	6.3	479,000	3.0
Lake Huron-Georgian Bay ports...	468,000	3.1	415,000	3.9	567,000	3.6
Port Huron and Detroit River...	237,000	1.6	208,000	1.9	226,000	1.4
Lake Erie ports....	34,000	0.2	10,000	0.1	62,000	0.4
Lake Ontario and St. Lawrence River.....	713,000	4.7	859,000	8.1	498,000	3.1
Total Canadian.	3,042,000	19.9	2,963,000	27.8	3,429,000	21.6
Grand total.....	15,321,000	100.0	10,663,000	100.0	15,841,000	100.0

The Weather Vane of Industry

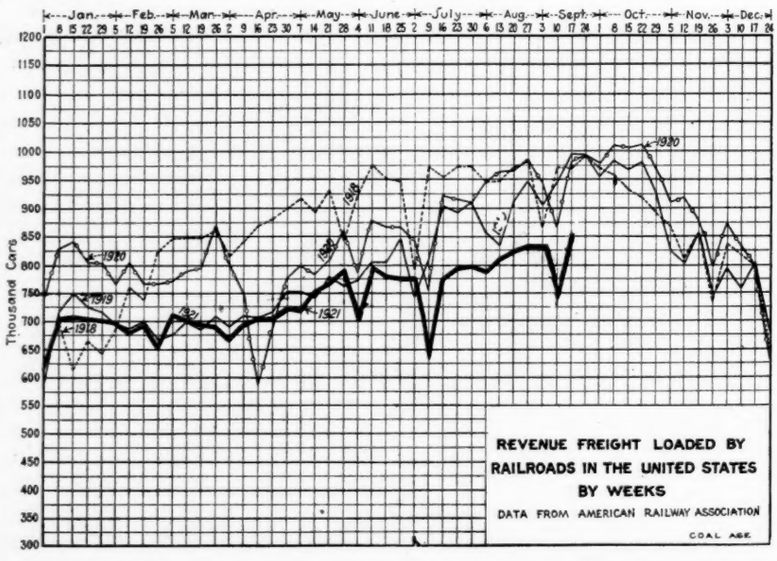
News Notes Chronicling the Trend of Industrial Activities on Which Depends the Immediate and Future Market for Coal

PERHAPS the one most immediately effective measure which the Government could take to ameliorate the unemployment situation, according to the *Guaranty Survey*, a review of business and financial conditions published Sept. 26 by the Guaranty Trust Company of New York, would be the funding of the existing indebtedness of the railroad companies on account of capital expenditures while the roads were under its control. "That would place at the disposal of the roads $500,000,000," the *Survey* continues, "and would materially improve their financial position and hasten the time when they could make much needed expenditures for maintenance, improvements and expansion.

"Some relief is being provided through the recent sale by the Government of railroad equipment trust certificates, but the amount involved is as yet comparatively small, and this does not obviate the necessity for the funding of the indebtedness. To delay that action is to retard our economic recovery and prolong, if not increase, unemployment.

"The best construction that can reasonably be placed on the improvement which has lately been effected in the financial position of the carriers is that their comparatively favorably showing under adverse conditions is a hopeful sign."

During the week which ended on September 17, 853,762 cars were loaded with revenue freight on the railroads of the United States, according to reports by the American Railway Association. This is the largest number loaded during any one week, records show, since the week of Dec. 4, 1920. The total for the week was 105,644 cars greater than that for the previous week when, however, the observance of Labor Day resulted in a falling off in traffic. It was, however, 137,404 cars less than were loaded during the corresponding period last year and 141,229 less than during the corresponding period in 1919.



Steel Mill Operations Improve

Operations of the United States Steel Corporation at the present time are understood to range between 35 and 40 per cent., which is considerable improvement over July, when the mills were turning out only about 25 per cent. of capacity. In addition to increased operations it is reported that new orders are coming to hand in fairly large volume compared with recent months.

$5,000,000 Improvement at Norfolk

The Norfolk Port Commission has advised the City Council that the port development work being planned by the Commission will cost about $5,000,000. Plans have been drawn under the direction of the Commission for pier, warehouse and grain elevator facilities, which will cost upward of $4,000,000, and a small boat terminal also is contemplated.

Philadelphia Textile Mills Hum

Textile industries and affiliated trades in Philadelphia are beginning to hum with activity as a result of increased business, giving employment to thousands of persons and making necessary double shifts in several plants. A survey of conditions, particularly in the sweater and hosiery trades, indicates these are fast recovering and are beginning to enjoy prosperous days. Virtually every one of the scores of knitted outerwear mills in the city is busy, many of them night and day, working on orders that are pouring in.

Big Chilean Order for Westinghouse

The Westinghouse Electric International Co. announced Sept. 28 that it had received final confirmation of the contract to supply the equipment for electrifying the Chilean State Railway between Valparaiso and Santiago and to Los Andes. The contract, which has total value of $7,000,000, was secured in spite of keen competition from German and other European concerns.

Industry Gains in West Virginia

Industrial conditions in West Virginia show a steady improvement in the last two months, according to reports from field agents made public by the Bureau of Labor, Charleston, W. Va. The reports show that many plants, including glass factories and steel mills, have resumed operations after having been idle for months.

Sees End of Business Depression

"Business is getting better and I think we scraped bottom some time ago so far as the business depression is concerned, and from now on business will be better," declared Carl R. Gray, president of the Union Pacific system, in commenting on conditions, at Salt Lake City, Sept. 26.

National Coal Association Adopts Recommendation of Standard Cost Accounting System for Producers

SUCH cogent reasons for the adoption of a standard system of cost accounting in the operating end of the coal trade were advanced at a meeting held on Tuesday, Sept. 24, at the Hotel Gibson in Cincinnati under the auspices of the committee delegated by the National Coal Association to consider the problem that the recommendation of the committee was adopted.

So many persons crowded into the small room on the mezzanine floor at the morning session that larger quarters were obtained for the afternoon sessions. In addition to the accountants and others of various coal firms and associations who had been invited to attend the meeting, some thirty-five secretaries of coal operators' associations from all parts of the country also were present.

Thomas T. Brewster, who has served on the committee since its formation at the meeting of the association held in Chicago in May, 1919, acted as chairman, with W. B. Reed as secretary. Prior to the discussion printed pamphlets setting forth the need of uniform cost accounting were passed about as well as the five forms which have been advocated as a solution to the cost-keeping problems.

Mr. Brewster briefly recounted the history of the committee's work and the effort that had been made to arrive at a comprehensible solution of the problem. He declared that until the necessity of keeping track of costs was thoroughly recognized coal men would plunge on in the dark, to their own loss and to the detriment of the rest of the trade.

Overhead-Expense Account Should Overlook Nothing

He was followed by W. D. McKinney, of Columbus, who went into the matter thoroughly and declared that there were so many matters entering into the "overhead expense" of mines nowadays that nothing should be overlooked in arriving at the actual cost of producing coal. He took occasion to say that some of the operating concerns were not as keen to go into the matter of cost sheets as they might be because of certain uses that had been made of them by officials in Washington. This drew from Mr. Brewster the statement that "What we are after is a system of cost accounting that will give actual operating expenses. We are not concerned with what the Bureau of Economics may do with them nor the deductions which they may draw."

R. W. Gardiner, of Pittsburgh, informed those present that a lot of work would be saved for companies that would base their scale to miners on production and said that cost sheets that would provide a detailed analysis were bound to be of profit to those that kept them. He also pointed out the value of keeping a check upon supplies and said that a cost system would be a means of keeping a check upon many items that escape the attention of most of the producers.

J. H. Alport, formerly connected with the Fuel Administration, said that a uniform system of accounting was in a great sense a paradox, for "the more I know, the less I know about it." He said that he had examined more than 20,000 reports that had been made to the Fuel Administration, and in all of these no operator had reckoned in the depreciation upon his mine or mines the years that he had made nothing.

Why Depleton Should Be Carefully Considered

"In Washington," he said, "You have a bunch of department sharps to deal with and you must follow what they suggest—unless you have something better to offer." Mr. Alport then pointed out that the matter of depletion alone was worthy of careful consideration and illustrated this point by an instance wherein a company had been basing its costs upon 100 years of life for its mine, while the department figured it at forty years. "As an actual fact the mine had but eighteen years to run, and this figures a matter of $52,000 which should be coming back to those people.

"In the Revenue Department they will accept any average which may be paid to them but if you don't know all of the costs that enter into your production, you lose it."

Tom Lewis, secretary of the New River Operators' Association, was the next speaker. He went back to the days of the Fuel Administration and related the mad scramble that there was to fix the price of coal for the various districts, "which the Administration did to the best of its judgment. We found in the New River field that nine-tenths of our mines would have to shut up shop under the prices fixed. A meeting was called and the point considered was how to get out of the muddle.

"The men who did the most complaining were the men who knew the least on the cost of producing coal. We finally believed that our only solution was in getting an expert accountant to go over the whole situation. That cost money and we figured that all concerned would have to pay 3c. to 4c. a ton for it for a number of months on every ton of coal that was mined. Some of them said that they were not going to be robbed. In the end, however, we got at the matter of cost, and with the figures that we obtained we were able to go to Washington, and an increase of 25c. on the ton was granted us as a result."

Less Than 2 Per Cent Income in 1910

Mr. Norris drew the attention of those present to the fact that in 1910 the bituminous coal mines of this country did not pay 2 per cent upon the investment. Producers kept on working, though their profits fell and their costs rose, with the hope that there might be a change in the next month.

The small operator, according to Mr. Norris, is in greatest need of the results obtained by keeping track of costs. "There are many instances," said he, "where the president of an operating company is the general manager, superintendent or storekeeper, but he does not take into consideration that he should have both pay for his labor and return for the money that he has invested. This with other points I pointed out to President Van Hise, who is the dean of economics in the University of Wisconsin, while I was on the Fuel Administration in Washington. 'But, man,' he said to me, 'you are violating every law of economics in making such allowances. You are establishing new principles. Where did you gentlemen ever study economics?'

"'I didn't,' I confessed.

"The professor sagely shook his head and said, 'I thought so.'"

Coal Knowledge Needed in Revenue Department

Mr. Norris advanced the theory that much might be accomplished for the benefit of the coal men if at some time there were men at the head of bureaus in the Revenue Department of the government who were familiar with the problems of the coal operator, "and spoke their language."

Acting upon a suggestion made by Mr. Lewis that the five forms that have been worked out by the cost accounting committee be adopted and approved, Chairman Brewster then took up this matter and appointed a committee composed of Messrs. Alport, Reed and Norris to consider any elaborations or suggestions that might be made. A few minor suggestions cropped out before the morning session adjourned.

During the afternoon session W. L. A. Johnson, of Kansas City, secretary of the Southwestern Operators' Association, asked whether any of those present had delved into the matter of keeping costs on stripping operations. He said that some of the operators in the Southwest were puzzled over the fact that in using their shovels for stripping for a certain period they showed nothing but a loss and then when they struck coal and became producers they usually were profit producers for a proportionate length of time. Mr. Johnson seemed to believe that this would not be under-

stood by those who did not know or who were not familiar with such work.

Someone replied that the monthly cost sheets in such instances would go for little but that the yearly sheets would tell the tale.

The discussion then drifted into the legality of gathering cost sheets and Mr. Brewster explained to the secretaries and others that this matter had been taken up with the legal advisers of the National Coal Association, and that they could see no possible objection to such procedure. Mr. Brewster also quoted from an opinion rendered by Justice Taft a few years ago which would tend to show that the collection of cost sheets would not in any way infringe upon the Sherman Act nor be in restraint of trade.

J. E. McCoy, of Knoxville, secretary of the Appalachian Coal Operators' Association, then detailed the workings of a credit bureau which is maintained by his organization in which tab is kept upon firms and others who are slow pay or no good. In concluding his talk Mr. McCoy—in search of information—requested that those who were meeting with success in the collection of cost sheets hold up their hands. One secretary declared that all but three of the ninety operators that he represented were sending them in, and with him came five others with this report.

Raid Causes Discontinuance of Cost Data

The preponderance of the representation admitted that they were getting no return of cost sheets at all. As an explanation of this it was said that most of the operators stopped sending in the data when the raid was made upon the offices of the National Coal Association in Washington. This with the ruling of a Memphis jurist against collection of trade information had been a deterrent it seemed.

Several persons present were of the opinion that the coal trade should be awakened to the necessity of gathering cost data even though lawsuits result, lest the benefits that had accrued during the period when reports were made be lost.

Adoption of the committee's recommendation upon the changes in the form of the cost sheets brought the meeting to a close.

Mingo Operator Sues to Enjoin U. M. W. A.; Indiana Producers Also Named

OPERATORS in the Thacker and Williamson coal fields of Southern West Virginia, the scene of the Mingo disturbances and all that has followed of trouble and bloodshed in the efforts of the United Mine Workers to unionize this field, on Sept. 23, 1921, brought action in the U. S. District Court to enjoin the United Mine Workers from further efforts to organize their operations. The suit was brought in the name of the Borderland Coal Corporation of Virginia but it is understood that sixty-two coal companies in West Virginia and Pike County, Kentucky, are behind the action.

Besides the union officials and members it is reported that there are named as defendants the Jackson Hill Coal & Coke Co., Rowlands Power Consolidated Colliery Co., and the Lower Vein Coal Co., all producers in Indiana, and others with operations in the Central Competitive Field. The suit charges conspiracy by operators of the Central Competitive Field and the miners' union to eliminate non-union competition.

Wholesale Prices of Foodstuffs Advanced 13.5 Per Cent During August

WHOLESALE prices of many important foodstuffs showed a strong upward tendency during August, according to information gathered by the U. S. Department of Labor through the Bureau of Labor Statistics. Among articles showing decided price advances were butter, cheese, milk, eggs, rice, meats, sugar, fruits and potatoes. Meat animals, including cattle and hogs, also averaged higher in August than in July.

As measured by the bureau's weighted index number, food articles in the aggregate were nearly 13½ per cent higher in August than in the month before. Farm products, including many food items in the raw state, were 2½ per cent higher. In all other groups, except that of cloths and clothing, decreases took place, ranging from 1 per cent in the case of building materials to 4 per cent in the case of metals. Cloths and clothing articles showed no change in the general price level. All commodities, considered as a whole, were approximately 2¾ per cent higher than in July.

Of 327 commodities, or series of quotations, for which comparable data for July and August were obtained, increases were found to have occurred for 99 commodities and decreases for 123 commodities. In 105 cases no change in price took place in the two months.

Nine Industries Employed More Help, Five Less, in August Than in July

FROM data received through the Bureau of Labor Statistics, the U. S. Department of Labor issued Sept. 20 tabulated reports concerning the volume of employment in August, 1921, in representative establishments in thirteen manufacturing industries and in bituminous coal mining.

Comparing the figures of August, 1921, with those of identical establishments for August, 1920, it appears that in six industries there were increases in the number of persons employed, while in eight there were decreases. The largest increase, 114 per cent, is shown in the woolen industry. The great increase reported for the woolen industry for August, 1921, over August, 1920, is due to the recovery from a period of idleness. The most important decreases are 43.1 per cent in iron and steel, 36.1 per cent in car-building and repairing, 35.8 per cent in automobiles, and 33.8 per cent in paper.

Eleven of the fourteen industries show decreases in the total amount of the payroll for August, 1921, as compared with August, 1920, and three show increases. The most important percentage increase, 82.8, appears in woolen. The largest decreases appearing during this period are 68.6 per cent in iron and steel, 47.1 per cent in car building and repairing, 46.9 per cent in paper, and 39.2 per cent in automobiles.

Comparative data for July, 1921, and August, 1921, show that in nine industries there were increases in the number of persons on the payroll in August as compared with July, and in five a decrease. The largest increases—5.5 per cent, 5.3 per cent, 4.9 per cent and 4.8 per cent—are shown in hosiery and underwear, men's ready-made clothing, iron and steel, and boots and shoes, respectively. A decrease of 5.9 per cent appears in automobiles and one of 1.6 per cent in bituminous coal mining.

In comparing August, 1921, with July, 1921, eleven industries show decreases in the amount of money paid to employees and three show decreases. The most important increases are 15.4 per cent in iron and steel, 12.7 per cent in men's ready-made clothing, 12.5 per cent in hosiery and underwear, and 11.9 per cent in bituminous coal mining. A decrease of 3.7 per cent is found in automobiles, 2.2 per cent in cotton manufacturing, and 1.3 per cent in the woolen industry.

In the bituminous coal mining industry a 20-per cent decrease in rates of wages was reported by five mines affecting 41 per cent, 15.4 per cent, 4.8 per cent, 2.6 per cent, and 2.3 per cent of the forces, respectively. The entire force in one mine was cut 10 per cent in wages. Due to more time being worked in the mines, the per capita earnings for August are 13.6 per cent higher than for July.

Must Pay Dependents Though They No Longer Reside in United States.—The Workmen's Compensation Board of Pennsylvania dismissed the appeal of the Idamar Coal Co. in the plea of the Royal Consul General of Italy for dependents of Girolamo Anton Bellomo. The coal company contended that these dependents were not entitled to compensation because they were no longer residents of the United States but of Italy, but the board held that they were entitled to compensation nevertheless.

Unemployment Conference Makes Rapid Progress; Coal Committee Silent; Will Report Oct. 10

By Paul Wooton
Washington Correspondent

"FUNDAMENTALLY sound, financially strong, industrially unimpaired, commercially consistent and politically unafraid, there ought to be work for everybody in the United States who chooses to work, and our condition at home and our place in the world depend on everybody going to work and pursuing it with that patriotism and devotion which make for a fortunate and happy people." With these words President Harding opened the National Conference on Unemployment in Washington last week. The opening sessions were impressive both because of the character of the leadership and the high standing of the fifty-two delegates selected and by reason of the national importance of the subject of the conference.

On Friday, Sept. 30, the work of the general conference had progressed to such an extent that a general summary of conclusions was presented and adjournment taken until Oct. 10, when the final reports of the committees will be offered for consideration. Conclusions of the mining committee are to be presented at that time. Prior to that presentation, no announcement is to be made of the conclusions reached by the committee. It is understood, however, that the committee had little to recommend affecting emergency unemployment and that the recommendations deal almost entirely with suggestions for permanent relief and general stabilization of the industry.

The committee held its first session on Sept. 27, immediately following the general conference meeting that made the committee assignments. The committee, as selected by the conference, consists of John D. Ryan, Samuel A. Lewisohn, W. K. Field, E. M. Poston, John T. Connery, James B. Neale, John Moore, John L. Lewis, John P. White and Miss Mary Van Kleeck. John D. Ryan was chosen chairman of the committee and David L. Wing, its executive secretary.

Sub-Committees on Coal and Metal Mining Formed

After holding sessions on the afternoon of Sept. 27 and the morning of Sept. 28, at which the unemployment data were discussed thoroughly, it was decided, in order to expedite matters, to form two sub-committees. One of the sub-committees has been dealing with coal matters and the other with metal mining. The sub-committees have gone over the various plans put forward for the relief of unemployment and as this is written the conclusions of the committees are in process of formation.

The sub-committee on coal mining has gone over a large volume of data. It has been in almost constant session since its formation. In a formal statement given out by the sub-committee it is said that "the present emergency is connected so intimately with fundamental conditions in the industry that the problem of practical relief measures presents very great difficulties."

Mr. Ryan was unable to remain in Washington and Mr. Poston was made the acting chairman of the committee.

Herbert Hoover, in his opening remarks, summarized the situation in the following words: "There is no economic failure so terrible in its import as that of a country possessing a surplus of every necessity of life in which numbers, willing and anxious to work, are deprived of these necessities. It simply cannot be if our moral and economic system is to survive. It is the duty of this conference to find definite and organized remedy for this emergency and I hope also that you may be able to outline for public consideration such plans as will in the long view tend to mitigate its recurrence. . . .

"We need a determination of what emergency measures should be undertaken to provide employment and to mitigate the suffering that may arise during the next winter, and the method of organization for their application. We need a consideration and a statement of what measures must be taken to restore our commerce and employment to normal or, to put it in another way, what obstacles need to be removed to promote business recovery—the only real and lasting remedy for unemployment is employment.

"It seems to me we can on this occasion well give consideration to and expression of the measures that would tend to prevent the acute reactions of economic tides in the future. A crystallization of much valuable public thought on this matter would have lasting value in education of our people.

"The remedies for these matters must in the largest degree lie outside of the range of legislation. It is not consonant with the spirit of institutions of the American people that a demand should be made upon the public treasury for the solution of every difficulty. The administration has felt that a large degree of solution could be expected through the mobilization of the fine co-operative action of our manufacturers and employers, of our public bodies and local authorities, and that if solution could be found in these directions we would have accomplished even more than the care of our unemployed, that we will have again demonstrated that independence and ability of action amongst our own people that saves our government from that ultimate paternalism that would undermine our whole political system. . . .

"What our people wish is the opportunity to earn their daily bread, and surely in a country with its warehouses bursting with surpluses of food and clothing, with its mines capable of indefinite production of fuel, with sufficient housing for comfort and health, we possess the intelligence to find solution. Without it our whole system is open to serious charges of failure. . . .

"Those economic movements which have presently reached the phase of unemployment, the exact measure of which is yet to be determined by the facts, can be modified and possibly controlled by practical remedies available through co-operative service on the part of those abundantly able and doubtless eager to render it.

"This crisis in some respects is fraught with hardships quite as grave as those which confronted the country during the period of its participation in the Great War. The generous response then made by men and women in all walks of life to appeals for service will be repeated in this emergency if a practical plan is devised for the mobilization of this conquering force of service."

Preliminary Recommendations of General Conference

The preliminary recommendations of the general conference as related to the whole subject of unemployment as an emergency are as follows:

(1) The conference finds that there are variously estimated from 3,500,000 to 5,500,000 unemployed, and there is a much greater number dependent upon them. There has been an improvement, but pending general trade revival this crisis in unemployment cannot be met without definite and positive organization of the country.

(2) The problem of meeting the emergency of unemployment is primarily a community problem. The responsibility for leadership is with the Mayor and should be immediately assumed by him.

(3) The basis of organization should be an emergency committee representing the various elements in the community. This committee should develop and carry through a community plan for meeting the emergency, using existing agencies and local groups as far as practicable. One immediate step should be to co-ordinate and establish efficient public employment agencies and to register all those desiring work. It should co-ordinate the work of the various charitable institutions. Registration for relief should be entirely separate from that for employment.

(4) The personnel of the employment agencies should be selected with consideration to fitness only and should be directed

to find the right job for the right man and should actively canvass and organize the community for opportunities for employment. The registry for employment should be surrounded with safeguards and should give priority in employment to residents. Employers should give preference to the emergency employment agencies.

(5) The emergency committee should regularly publish the numbers dependent upon them for employment and relief that the community may be apprised of its responsibility. Begging and unco-ordinated solicitation of funds should be prevented.

(6) Private houses, hotels, offices, etc., can contribute to the situation by doing their repairs, cleaning and alterations during the winter instead of waiting until spring, when employment will be more plentiful.

(7) Public construction is better than relief. The municipalities should expand their school, street, sewage, repair work and public buildings to the fullest possible volume compatible with the existing circumstances. That existing circumstances are favorable is indicated by the fact that over $700,000,000 of municipal bonds, the largest amount in history, have been sold in 1921. Of these, $106,000,000 were sold by 333 municipalities in August. Municipalities should give short-time employment the same as other employers.

(8) The Governor should unite all state agencies for support of the Mayors and, as the superior officer, should insist upon the responsibility of city officials; should do everything compatible with circumstances in expedition of construction of roads, state buildings, etc.

(9) The Federal authorities, including the Federal Reserve banks, should expedite the construction of public buildings and public works covered by existing appropriations.

(10) A congressional appropriation for roads, together with state appropriations amounting to many tens of millions of dollars already made in expectation of and dependence on Federal aid, would make available a large amount of employment. The conference under existing circumstances, notwithstanding various opinions as to the character of the legislation and the necessity for economy, recommends congressional action at the present session in order that work may go forward.

(11) The greatest area for immediate relief of unemployment is in the construction industry, which has been artificially restricted during and since the war. We are short more than a million homes; all kinds of building and construction are far behind national necessity. The Senate Committee on Reconstruction and Production, in March of this year, estimated the total construction shortage in the country at between ten and twenty billion dollars. Considering all branches of the construction industries more than two million people could be employed if construction were resumed. Undue cost and malignant combinations have made proper expansion impossible and contributed largely to this unemployment situation. In some places these matters have been cleaned up. In other places they have not and are an affront to public decency. In some places these things have not existed. In others costs have been adjusted. Some materials have been reduced in price as much as can be expected. Where conditions have been righted, construction should proceed, but there is still a need of community action in provision of capital on terms that will encourage home building. Where the costs are still above the other economic levels of the community there should be searching inquiry and action in the situation. We recommend that the Governors summon representative committees, with the co-operation of the Mayors or otherwise as they may determine, to (a) determine facts; (b) to organize community action in securing adjustments in cost, including removal of freight discriminations, and clean-out campaigns against combinations, restrictions of effort, and unsound practices where they exist to the end that building may be fully resumed.

(12) Manufacturers can contribute to relieve the present acute unemployment situation by:

(a) Part-time work, through reduced time or rotation of jobs.

(b) As far as possible, manufacturing for stock.

(c) Taking advantage of the present opportunity to do as much plant construction, repairs and cleaning up as is possible, with the consequent transfer of many employees to other than their regular work.

(d) Reduction of the number of hours of labor per day.

(e) The reduction of the work week to a lower number of days during the present period of industrial depression.

(f) That employees and employers co-operate in putting these recommendations into effect.

A large number of employers have already, in whole or in part, inaugurated the recommendations herein set forth, and for this they are to be commended, and it is earnestly urged upon those employers who have not done so to put same into use, wherever practicable, at the earliest possible opportunity.

(g) Specific methods for solution of our economic problems will be effective only in so far as they are applied in a spirit of patriotic patience on the part of all our people.

During the period of drastic economic readjustment, through which we are now passing, the continued efforts of anyone to profit beyond the requirements of safe business practice or economic consistency should be condemned. One of the important obstacles to a resumption of normal business activity will be removed as prices reach replacement values in terms of efficient producing and distributing cost plus reasonable profit.

We, therefore, strongly urge all manufacturers and wholesalers who may not yet have adopted this policy to do so, but it is essential to the success of these measures when put into effect that retail prices shall promptly and fairly reflect the price adjustment of the producer, manufacturer, and the wholesaler.

When these principles have been recognized and the recommendations complied with, we are confident that the public will increase their purchases, thereby increasing the operations of the mills, factories and transportation companies, and consequently reducing the number of unemployed.

Exporters Organize to Force Down Rail Freight Rates on Coal for Export

IN RESPONSE to requests from several coal exporting firms, a meeting was called at the Harvard Club, New York City, on Friday, Sept. 30, at 2 p.m., for the purpose of discussing inland freight rates on export coal. C. Andrade, Jr., was made chairman and Dr. Henry Mace Payne secretary of the meeting. Among the New York companies represented at the meeting were: Gano Moore & Co., Deegans Export Coal Co., New River Consolidated Coal Co., Lookout Coal Co., Astor Collieries Co., Eyre Fuel Co., Lake & Export Corporation, Fort Dearborn Coal Co., Imperial Coal Co., New England Coal & Coke Co., Dexter & Carpenter, Metropolitan Shipping Corporation, Archibald McNeil & Sons Co. and a number of Philadelphia and Baltimore firms by proxy.

It was the sense of the meeting that efforts should be concentrated toward obtaining a $1 per ton reduction in railroad freight rates on coal destined to Europe and South America, no attempt being made to alter existing differentials or affect rates now in operation to New England, Canada, Cuba, the West Indies, Mexico or Panama.

A committee consisting of Messrs. Matlack, Ellicott, Campbell, Payne and Simms was appointed to draft plans for the organization, and after the conference the committee recommended the employment of Mr. Andrade to prepare and submit the case to the Interstate Commerce Commission. The recommendation was carried unanimously. A finance committee composed of Messrs. Matlack, Ellicott and Campbell was then appointed to devise ways and means to carry the plan to execution.

The meeting adjourned to reconvene at 2 p.m., Friday, Oct. 7, at the Harvard Club, New York City.

Senator Smoot Submits 3 Per Cent Sales Tax Amendment; Coal Affected

SENATOR Smoot, of Utah, a member of the Senate Finance Committee, who is dissatisfied with the committee's revised tax bill, submitted amendments in the nature of substitutes on Friday, Sept. 30, including a 3-per cent sales tax which would apply to the coal industry. The tax would be upon every commodity manufactured or produced when sold, leased or licensed for consumption or use without further process of manufacture. The tax would be equivalent to 3 per cent of the price for which the commodity is sold, leased or licensed, and would be paid by the manufacturer or producer.

In a statement explaining the tax, the Senator says that as the tax is imposed only when articles are "for consumption or use without further process of manufacture" the tax will not be cumulative, to meet objections advanced against his original sales tax announced last spring. "For example, coal sold for consumption in a boiler will be taxable but coal sold for the manufacture of coke will not, the coke bearing a tax when sold," explained the Senator. The tax is to be paid monthly, beginning January next, but an exemption on sales up to $6,000 a year is allowed. Computations were made in co-operation with the Census Bureau based on 1919 business, including the estimated production of coal.

Navy Awards Contracts for 375,000 Tons of Coal for Ships and Navy Yards

COMPLETE figures on awards of coal contracts have been announced by the Bureau of Supplies and Accounts of the Navy Department as a result of the bids which were opened on Sept. 21. The largest award was made to Castner, Curran & Bullitt, for delivery of 185,000 gross tons of Pocahontas or New River coal at Hampton Roads or Sewalls Point during the period October, 1921, to March, 1922, at a delivered price of $5.04 per gross ton.

The total awards cover 375,000 tons for use of ships and navy yards. Smaller awards also were made for anthracite, ranging from $11 to $15 for delivery at various points on the Atlantic. Navy officials are pleased with the result of the bids.

The principal awards are as follows:

AWARDS COVERING BITUMINOUS COAL FOR SHIPS—SCHEDULE 8431

Contract and Tonnage	Contractor	Point of Delivery	Mines	Delivered Price
54,845 Class 258 5,000 tons	J. H. Weaver & Co., Phila., Pa.	A–N. Y. Harbor Pier delivery B–N. Y. Harbor Alongside vessel or N. Y.	Ebensburg No. 1	A– $7.00 B– 7.53
Period of delivery January 1, 1922, to March 31, 1922.				
54,845 Class 259 7,000 tons	J. H. Weaver & Co., Phila., Pa.	Phila. A–Pier delivery B–Alongside vessel of Navy Yard (barge delivery D–Delivery to ship's bunkers.	Ebensburg No. 1	A– $6.43 B– 6.59 D– 7.39
Period of delivery October 1, 1921, to March 31, 1922.				
54,846 Class 260 900 tons	Dexter & Carpenter, Inc. New York.	A–F.o.b. naval barges, Balto. for Annapolis. B–Barge delivery Naval Academy, Annapolis.	Pool 1 mines on acceptable list.	A– $6.6359 B– 7.2359 including war tax.
Period of delivery October 1, 1921, to March 31, 1922.				
54,847 Class 261 185,000 tons	Castner, Curran & Bullitt, New York.	A–Pier delivery, Hampton Roads and Sewell's Pt., for storage.	Mines on Navy Acceptable list. Pocahontas and/or New River.	A– $5.04
Period of delivery Oct. 1, 1921, to March 31, 1922.				

AWARDS COVERING BITUMINOUS COAL FOR NAVY YARDS—SCHEDULE 8432

Contract and Tonnage	Contractor	Point of Delivery	Mines	Guaranteed Analysis	Delvd. Price
54 848 Class 262 300 tons	Iron Trade Products Co., Pittsburgh, Pa.	Submarine Base, Conn.	Snyder	B.t.u., 14,344 Ash, 7.19 Sulphur, 1.80 Volatile, 21.00 Moisture, 1.00	$7.55
54,849 Class 263 5,000 tons	Metropolitan Coal Co., Boston, Mass.	Naval Hospital, Chelsea, Mass.	Slab Fork Premier Ocean	B.t.u., 14,500 Ash, 7.00 Sulphur, .70 Volatile, 19.50 Moisture, 3.00	$9.97
54,846 Class 266 1,800 tons	Dexter & Carpenter, New York	Naval Ammunition Depot, Iona Island, N. Y.	Claire	B.t.u., 14,000 Ash, 9.00 Sulphur, 2.00 Volatile, 28.00 Moisture	$6.46
54,850 Class 267 15,000 tons	Whiteley & Foedisch, Phila., Pa.	Navy Yard, Brooklyn, New York.	Bethlehem Nos. 1-2-6 7-8-9-11-12	B.t.u., 14,700 Ash, 7.50 Sulphur, 1.50 Volatile, 28.00 Moisture, 3.00	$6.28
Period of delivery January 1, 1922, to March 31, 1922.					
54,851 Class 268 9,000 tons	Morgantown Coal Co., Morgantown, W.Va.	Navy Supply Depot, South Brooklyn, N. Y.	Echart	B.t.u., 14,000 Ash, 8.00 Sulphur, 2.00 Volatile, 25.00 Moisture, 2.00	$6.41
54.846 Class 271 250 tons	Dexter & Carpenter, New York	Naval Ammunition Depot, Ft. Mifflin, Pa.	Claire	B.t.u., 14,000 Ash, 9.00 Sulphur, 2.00 Vola le, 28.00 Moisture	$5.9354
54,852 Class 272 18,000 tons	Morrisdale Coal Co., Phila., Pa.	Phila.-Ja.-F.a. s. wharf at Navy Yard, 3a-F.o.b. barge under chutes at piers.	Morrisdale Shafts 1 & 3 & Cunard Slope	B.t.u., 14,284 Ash, 7.52 Sulphur, 1.32 Volatile, 19.97 Moisture, 1.00	$5.75 $5.23
54,850 Class 272 36,000 tons	Whiteley & Foedisch, Phila., Pa.	Phila. 2a-F.o.b. hopper bottom cars, Navy Yard	Bethlehem Nos. 1-2-6-7-8-9-11-12	B.t.u., 14,700 Ash, 7.50 Sulphur, 1.50 Volatile, 28.00 Moisture, 3.00	$5.94
54,847 Class 273 30,000 tons.	Castner, Curran Bullitt, Inc., New York.	Navy Yard, Wash., D.C.	Mines on Navy Acceptable list.	.....	$5.42
54,848 Class 274 900 tons	Iron Trade Products Co., Pittsburgh, Pa.	Naval Engineering Experiment Station, Annapolis, Md.	Snyder	B.t.u., 14,344 Ash, 7.19 Sulphur, 1.80 Volatile, 21.00 Moisture, 1.00	$7.36
54,848 Class 275 19,800 tons	Iron Trade Products Co., Pittsburgh, Pa.	Naval Academy, Annapolis, Md.	Kimmel	B.t.u., 14,250 Ash, 8.50 Sulphur, 1.75 Volatile, 23.50 Moisture, 1.80	$6.33
54,847 Class 276 2,000 tons	Castner, Curran & Bullitt, New York.	276–Norfolk Naval Hospital.	Mines on List	Navy Acceptable	$5.53
Class 277 18,000 tons		277–Navy Yard			$5.53
Class 278 20,000 tons		278–N.O.B.			$5.53
54,878 Class 278½ 16,000 tons	Peabody Coal Co., Chicago	Naval Training Station, Great Lakes, Ill.	Westville No. 24	B.t.u., 12,445 Ash, 1.75 Sulphur, 1.75 Volatile, 35.25	$2.02 f.o.b. mine

AWARDS COVERING ANTHRACITE COAL—SCHEDULE 8433

Contract and Tonnage	Contractor and Mine	Point of Delivery	Mine Price	Freight plus Tax	Total Delivery Price
Class 286 1,400 No. 3 buckwheat	Weston Dodson & Co., Bethlehem, Pa. (Beaver Brook or East Alden mine)	Naval Home, Phila.	.....	.....	3.95
1,000 nut	Phila. & Reading. Coal & Iron Co., Phila., Pa. (Mahanoy & Schuylkill Mine)	.....	$8.05	$3.78 .1134	$11.9434
Class 289 1,200 egg	Ditto	Navy Yard, Wash., D. C.	7.75	3.64	

Miners Will Delay Demands Till February Oppose Cuts Now; Want Raise in April

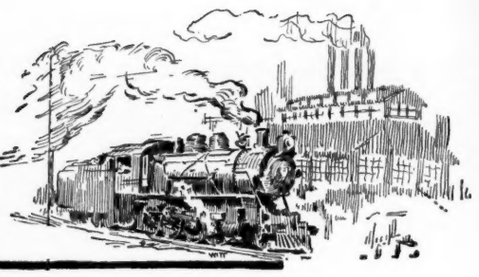
CONCURRENTLY with reports from Washington that Secretary of Commerce Herbert Hoover favors a wage reduction for mine workers, the delegates of the United Mine Workers of America, on Oct. 1, being assembled in Indianapolis, at their biennial international convention, voted to approve the report of Vice-President Murray, wherein he declared that the agreements to be made after March 31 next should be more favorable to the mine workers that any that had preceded them. Furthermore, by pledging the convention to support the Colorado and Washington mine workers, who are now idle and are endeavoring to resist a wage reduction, they signified their approval of the international board in opposing lowering of wage scales.

On that same eventful day they voted to approve President Lewis' proposal that the demands of the mine workers should not be published till February, when a report will be made to another convention by the scale committee.

The delegates appointed J. B. Wiggins, of Spriggs, W. Va.; F. C. Clifford, of Clifford, Ill., and E. J. Giles, of Chariton, Iowa, a committee to confer with President Harding as to the safety of C. F. Keeney, president of that district in West Virginia of which the Kanawha, New River, Logan and Mingo regions are a part; Fred Mooney, secretary of that district, and about 136 others These men are in Logan and Williamson jails charged with conspiracy against the peace of the state and with other offenses relating to the march from the Kanawha region into Logan County of some thousands of mine workers and the fighting that resulted. The convention also authorized taking a test case against the Kansas Industrial Court to the Supreme Court, in an attempt to prove its very existence illegal.

On the whole the administration comes out with flying colors, winning against Frank Farrington, of Illinois, in reference to an audit of the expenditures in an unauthorized strike, against Alex Howat, in Kansas, in regard to the irregular strike which he supported in that state, and also in the matter of the delay in a decision on the wage scale. Still there were bad moments. The union voted to disapprove salary increases of approximately 60 per cent which officers of the United Mine Workers had been receiving, and for a while it looked as if the excess might have to be repaid but the motion for the return of the money was killed when a vote was taken.

Production and the Market



Weekly Review

OPTIMISM not all hope has made its appearance in the coal market this week. There is nothing in the coal market itself to justify this state of mind as yet, but other business is looking good and it is other business that gives the coal man the orders. Production of coal, for one thing, is going steadily upward. From 8,000,000 tons to 8,500,000 tons the week of Sept. 24, is the latest jump. Prices are not following suit, however; *Coal Age* index of spot prices of bituminous coal at the mines this week dropped two points—from 90 on Sept. 27 to 88 on Oct. 3. Domestic sizes are moving fairly well and the trade is slashing screenings as a result in order to move them. "No bills" are in plentiful evidence in the Central West and the buyer is playing the market for all he is worth, in possession of full knowledge that on steam coal he still has the long end of it. Mine-run is feeling the pressure on screenings. The next week or two hold no prospect of any but purely minor price changes in the coal used by industry and the railroads.

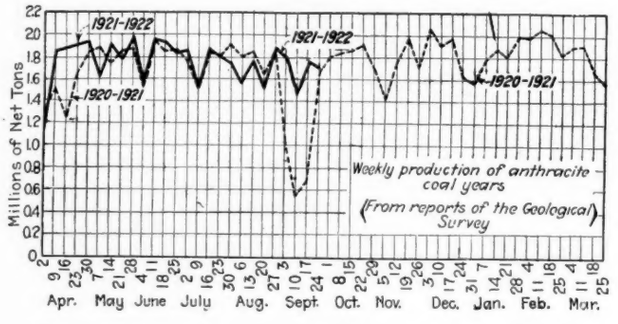
Seasonal Autumn Buying Gathers Momentum

The Pittsburgh district, in particular, reflects the better tone in iron and steel, and the resumption of more than seventy mills in Ohio has helped the feeling there. Seasonal autumn buying of coal is slowly gathering momentum and contracts that were not closed last spring are now being reconsidered. In other words, the buyer clung to the spot market all summer and he may be expected to change over soon.

The tonnage of railroad fuel is increasing, both because of increased traffic and because of increases in storage preparatory to winter. Lake shippers are due for a temporary spurt because the improved upper dock trade has made room for additional cargoes and the fact that reduced tariffs from the mines to lower ports will end Oct. 31. Demands for crop moving and business expansion ordinarily combine at this season to make inroads on the country's financial reserves, but in the last two weeks the fourth reduction has been made in the Federal Reserve's discount rate, which now stands at the lowest level since January, 1920, and money is easier. That may help some buyers of coal to come into the market for winter storage.

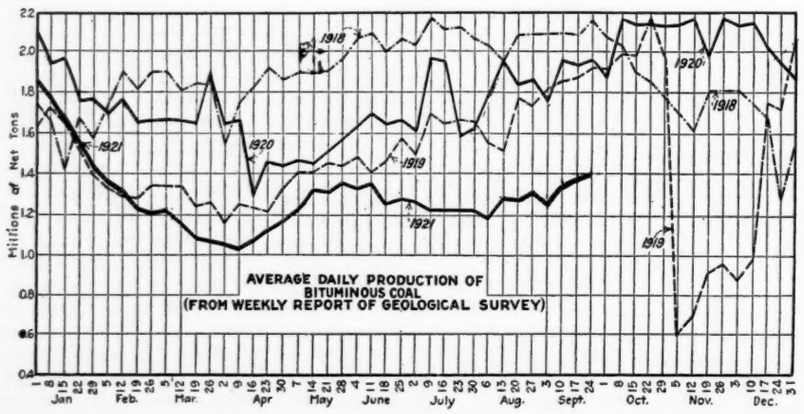
The South is enjoying a good autumn trade in everything but coal, which will surely follow. The progress of cotton has been in the public eye, but other staples have been moving though accompanied by less publicity. Orders for lumber have been picking up and twice during the past month the record of the last three years has been broken by Southern mills. Rice and sugar also have improved their condition.

From Cleveland, Minneapolis, Baltimore, Philadelphia and New York the reports are in much the same optimistic vein—"encouraging industrial resumption; not much increase in current orders but more interest shown in quotations for October delivery."


1921-1922
1921-1922
1920-1921
1920-1921
Millions of Net Tons
Weekly production of anthracite coal years
(From reports of the Geological Survey)
Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.

Anthracite production continues strong. Warmer weather has slowed up the distribution of family sizes but orders in hand provide shippers with adequate business for some time to come. Steam sizes are in better seasonal call.

The coke market has strengthened with the improvement in iron and steel. Beehive production is heavier,



Estimates of Production

(NET TONS)

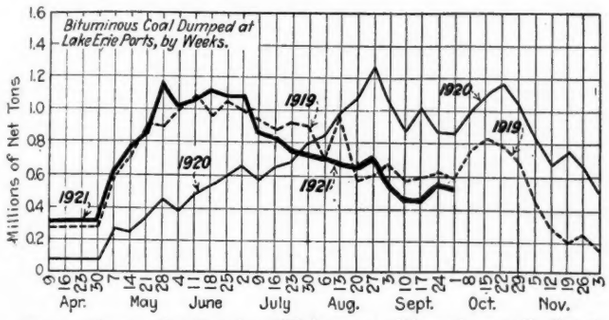
Week Ended	1921	1920
BITUMINOUS COAL		
Sept 10	7,083,000	10,685,000
Sept 17 (*b*)	8,193,000	11,654,000
Sept 24 (*a*)	8,506 000	11,851,000
Daily average	1,418,000	1,969,000
Calendar year	288,454,000	388,586,000
Daily average, calendar year	1,280,000	1,720,000
ANTHRACITE		
Sept. 10	1,508,000	562,000
Sept. 17 (*b*)	1,778,000	718,000
Sept. 24 (*a*)	1,754,000	1,701,000
Calendar year (*a*)	65,699,000	64,038,000
BEEHIVE COKE		
Sept. 17 (*b*)	64,000	403,000
Sept. 24 (*a*)	68,000	402,000
Calendar year	4,032,000	15,695,000

(*a*) Subject to revision. (*b*) Revised from last report.

although far below normal. Byproduct coke is still a deterrent to heavier beehive production but stocks of the former have decreased rapidly with the better call.

BITUMINOUS

Production of bituminous coal continued to improve during the week ended Sept. 24. The total output for the week, according to the Geological Survey, was 8,506,000 net tons, as compared with 8,193,000 in the preceding week. Further improvement is shown in reports for the first two days of the following week, when loadings increased 1,570 cars.



Domestic production is still heavy, although retail distribution is retarded by unseasonable weather and the poor buying power of householders. In view of the comparatively small tonnage in cellars, it is felt that cold weather may devolop some strenuous times for the retailer this winter. Retail stocks of prepared sizes are growing topheavy, as evidenced by some cutting of prices at the mines to move prepared coal.

Interests serving the New England market apparently are determined to stop the bargain business that has prevailed there for some time. This attitude is producing firmer prices, although the volume of business closed is smaller, both all-rail and through Hampton Roads. The all-rail movement during the week ended Sept. 24 was 2,894 cars, as compared with 2,530 cars in the week preceding.

BITUMINOUS RECEIPTS IN NEW ENGLAND, JANUARY-JULY, 1921

(In Net Tons)

	Tide	Rail	Total
January	707,000	981,000	1,688,000
February	544,000	721,000	1,265,000
March	594,000	741,000	1,335,000
April	604,000	586,000	1,190,000
May	588,000	650,000	1,238,000
June	759,000	799,000	1,558,000
July	612,000	634,000	1,246,000
Total	4,408,000	5,112,000	9,520,000
Total for 1918	.....	.....	15,879,000
Total for 1919	.....	.....	9,986,000
Total for 1920	.....	.....	11,853,000

Exporting is now practically a memory. During the week ended Sept. 24 there were dumped at Hampton Roads only 27,860 net tons for foreign cargoes and 27,173 for bunkers. Shipments were less than one-tenth of the weekly June av-

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F. O. B. Mines

Low-Volatile, Eastern	Market Quoted	Aug. 30, 1921	Sept. 20, 1921	Sept. 27, 1921	Oct. 4, 1921†
Pocahontas lump	Columbus	$5.30	$4.90	$4.90	*$4.50@$5.00*
Pocahontas mine run	Columbus	3.15	2.75	2.65	**2.65@ 2.90**
Pocahontas screenings	Columbus	2.40	2.20	2.10	1.90@ 2.30
Pocahontas lump	Chicago	5.00	4.75	4.75	4.50@ 5.00
Pocahontas mine run	Chicago	2.75	2.95	2.85	*2.25@ 3.00*
*Smokeless mine run	Boston	5.15	5.05	4.90	4.75@ 5.00
Clearfield mine run	Boston	1.80	1.95	1.90	**1.70@ 2.15**
Cambria mine run	Boston	2.45	2.35	2.35	2.00@ 2.70
Somerset mine run	Boston	1.70	1.75	1.75	**1.50@ 2.10**
Pool 1 (Navy Standard)	New York	3.25	3.25	3.25	3.00@ 3.50
Pool 1 (Navy Standard)	Philadelphia	2.95	3.10	3.10	2.90@ 3.25
Pool 1 (Navy Standard)	Baltimore	2.50	2.75	2.80	2.75@ 2.85
Pool 9 (Super. Low Vol.)	New York	2.50	2.40	2.55	*2.25@ 2.60*
Pool 9 (Super. Low Vol.)	Philadelphia	2.35	2.40	2.40	2.25@ 2.50
Pool 9 (Super. Low Vol.)	Baltimore	2.25	2.40	2.60	**2.60@ 2.70**
Pool 10 (H. Gr. Low Vol.)	New York	2.15	2.20	2.30	*2.00@ 2.25*
Pool 10 (H. Gr. Low Vol.)	Philadelphia	2.05	2.05	2.05	1.90@ 2.15
Pool 10 (H. Gr. Low Vol.)	Baltimore	2.00	2.15	2.30	**2.40@ 2.50**
Pool 11 (Low Vol.)	New York	1.90	1.90	1.90	1.75@ 2.00
Pool 11 (Low Vol.)	Philadelphia	1.80	1.80	1.80	1.75@ 1.90
Pool 11 (Low Vol.)	Baltimore	1.80	2.00	2.10	**2.15@ 2.20**
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	1.90	1.85	1.90	1.75@ 2.00
Pool 54-64 (Gas and St.)	Philadelphia	1.70	1.70	1.75	1.65@ 1.85
Pool 54-64 (Gas and St.)	Baltimore	1.60	1.70	1.70	**1.75@ 2.00**
Pittsburgh sc'd gas	Pittsburgh	2.65	2.65	2.65	2.55@ 2.75
Pittsburgh mine run (St.)	Pittsburgh	2.25	2.20	2.20	2.20@ 2.25
Pittsburgh slack (Gas)	Pittsburgh	1.70	2.15	2.15	2.00@ 2.25
Kanawha lump	Columbus	3.50	3.45	3.35	*3.00@ 3.50*
Kanawha mine run	Columbus	2.15	2.15	2.00	1.90@ 2.15
Kanawha screenings	Columbus	1.30	1.20	1.25	*1.10@ 1.25*
Hocking lump	Columbus	3.20	3.25	3.25	3.00@ 3.50
Hocking mine run	Columbus	2.15	2.15	2.15	*1.90@ 2.10*
Hocking screenings	Columbus	1.35	1.20	1.15	*1.00@ 1.15*
Pitts. No. 8 lump	Cleveland	3.25	3.25	3.25	3.00@ 3.50
Pitts. No. 8 mine run	Cleveland	2.30	2.15	2.10	*$2.00@$2.15*
Pitts. No. 8 screenings	Cleveland	1.70	1.55	1.50	**1.50@ 1.55**
Midwest					
Franklin, Ill. lump	Chicago	3.65	3.65	3.80	*3.25@ 4.05*
Franklin, Ill. mine run	Chicago	2.90	2.90	2.95	*2.00@ 3.50*
Franklin, Ill. screenings	Chicago	1.95	1.90	1.75	*0.80@ 2.65*
Central, Ill. lump	Chicago	2.70	2.70	2.70	*2.00@ 3.00*
Central, Ill. mine run	Chicago	2.40	2.40	2.40	*1.75@ 2.75*
Central, Ill. screenings	Chicago	1.75	1.60	1.60	*0.60@ 2.25*
Ind. 4th Vein lump	Chicago	2.95	2.95	2.95	*2.25@ 3.50*
Ind. 4th Vein mine run	Chicago	2.50	2.40	2.40	**2.30@ 2.75**
Ind. 4th Vein screenings	Chicago	1.70	1.65	1.60	*1.00@ 2.15*
Ind. 5th Vein lump	Chicago	2.90	2.90	2.90	*2.15@ 3.25*
Ind. 5th Vein mine run	Chicago	2.40	2.40	2.40	**2.25@ 2.75**
Ind. 5th Vein screenings	Chicago	1.75	1.65	1.55	*0.70@ 2.15*
Standard lump	St. Louis	2.45	2.75	3.15	**3 25**
Standard mine run	St. Louis	1.85	1.95	1.95	*1.65@ 2.00*
Standard screenings	St. Louis	0.95	0.60	0.50	*0.25@ 0.40*
West. Ky. lump	Louisville	3.10	2.75	2.90	**2.75@ 3.25**
West Ky. mine run	Louisville	2.45	2.25	2.25	2.00@ 2.50
West Ky. screenings	Louisville	1.50	1.25	1.15	0.80@ 1.50
South and Southwest					
Big Seam lump	Birmingham	3.75	3.75	3.75	3.25@ 4.25
Big Seam mine run	Birmingham	2.10	2.15	2.15	2.00@ 2.30
Big Seam (washed)	Birmingham	2.35	2.40	2.40	*2.15@ 2.40*
S. E. Ky. lump	Louisville	3.65	3.50	3.65	*3.50@ 3.60*
S. E. Ky. mine run	Louisville	2.30	2.15	2.20	*2.00@ 2.15*
S. E. Ky. screenings	Louisville	1.55	1.50	1.50	*1.00@ 1.50*
Kansas lump	Kansas City	....	5.75	5.75	5.75
Kansas mine run	Kansas City	....	4.25	4.00	4.00
Kansas screenings	Kansas City	....	2.50	2.40	2.40

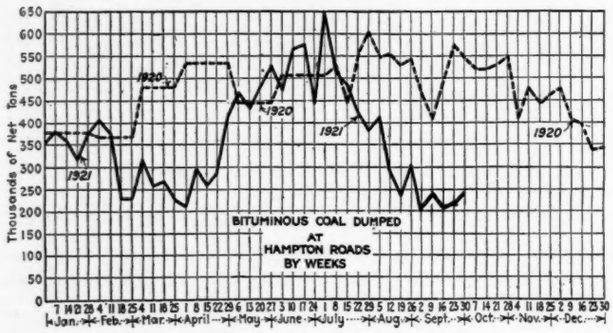
*Gross tons, f.o.b. vessel, Hampton Roads.
†Advances over previous week shown in **heavy type**, declines in *italics*.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F. O. B. Mines

	Market Quoted	Freight Rates	Sept. 20, 1921 Independent	Sept. 20, 1921 Company	Sept. 27, 1921 Independent	Sept. 27, 1921 Company	Oct. 4, 1921† Independent	Oct. 4, 1921† Company
Broken	New York	$2.61	.....	$7.60@$7.75	.....	$7.60@$7.75	.....	$7.60@$7.75
Broken	Philadelphia	2 66	$7 60@$8.20	7.75@ 7.85	$7.60@$8.20	7.75@ 7.85	$7.60@$8.20	7.75@ 7.85
*Broken	Chicago	5 62	12.75	12.65	13.40	12.80	13.40	12.80
Egg	New York	2 61	7 75@ 8.25	7.60@ 7.75	7.75@ 8.25	7.60@ 7.75	*7.75@ 8.00*	7.60@ 7.75
Egg	Philadelphia	2 66	8.10@ 8.35	7.75@ 7.85	8.10@ 8.35	7.75@ 7.85	8.10@ 8.35	7.75@ 7.85
*Egg	Chicago	5 62	12.80	12.65	13.40	12.80	13.40	12.80
Stove	New York	2 61	8.25@ 8.50	7.90@ 8.10	8.25@ 8.60	7.90@ 8.10	**8.25@ 8.75**	7.90@ 8.10
Stove	Philadelphia	2 66	8.25@ 8.60	8.00@ 8.35	8.25@ 8.60	8.00@ 8.35	**8.25@ 8.75**	8.00@ 8.35
*Stove	Chicago	5 62	13.40	12.90	13.40	12.90	13.40	12.90
Chestnut	New York	2 61	7.75@ 8.25	7.90@ 8.10	8.00@ 8.25	7.90@ 8.10	**8.00@ 8.50**	7.90@ 8.10
Chestnut	Philadelphia	2 66	8.20@ 8.75	8.05@ 8.25	8.20@ 8.75	8.05@ 8.25	8.20@ 8.75	8.05@ 8.25
*Chestnut	Chicago	5 62	13.10	12.90	13.40	12.90	13.40	12.90
Pea	New York	2 47	5.00@ 6.00	6.05@ 6.45	5.00@ 5.75	6.05@ 6.45	*5.00@ 5.50*	6.05@ 6.45
Pea	Philadelphia	2 38	4.50@ 5.50	6 15@ 6.25	4.50@ 5.50	6.15@ 6.25	4.50@ 5.50	6.15@ 6.25
*Pea	Chicago	5 62	11.10	11.00	12.40	11.15	12.40	11.15
Buckwheat No. 1	New York	2 47	2.75@ 3 50	3.50	2.75@ 3.00	3.50	2.75@ 3.00	3.50
Buckwheat No. 1	Philadelphia	2 38	2.50@ 3.00	3.50	2.50@ 3.00	3.50	2.50@ 3.00	3.50
Rice	New York	2 47	2.00@ 2.50	2.50	1.80@ 2.15	2.50	1.80@ 2.15	2.50
Rice	Philadelphia	2.38	1.75@ 2.00	2.50	1.75@ 2.00	2.50	1.75@ 2.00	2.50
Barley	New York	2.47	1.25@ 1.50	1.50	1.25@ 1.50	1.50	1.25@ 1.50	1.50
Barley	Philadelphia	2.38	1.00@ 1.25	1.50	1.00@ 1.25	1.50	1.00@ 1.25	1.50
Birdseye	New York	2.47	.....	2.50	.....	2.50	.....	2.50

*Prices and freight rates, net tons; quotations f.o.b. cars, Chicago.
†Advances over previous week shown in **heavy type**, declines in *italics*.

erage in overseas movement. Total dumpings for all accounts during the week ended Sept. 29 were 217,223 gross tons, nearly 20,000 increase over the week preceding, showing to what extent the coastwise market is being utilized.



Lake dumpings during the week ended Oct. 1 were 549,051 net tons, as compared with 593,187 in the week preceding.

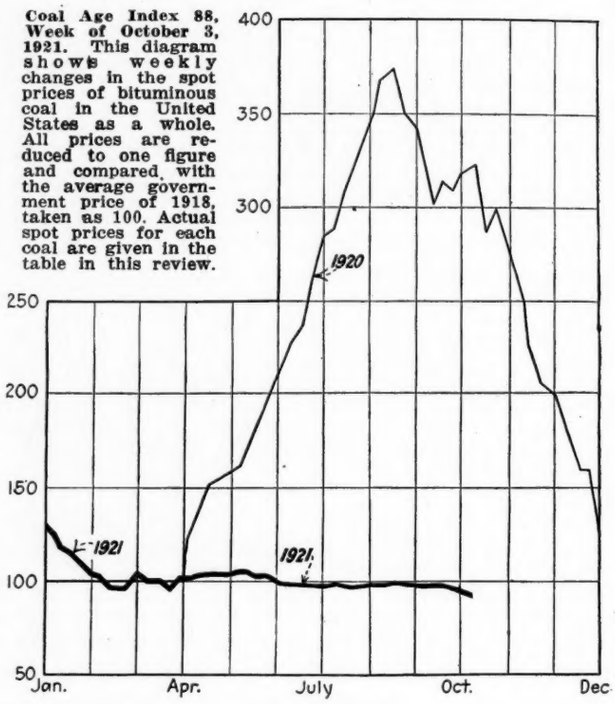
ANTHRACITE

Production of hard coal continues steady. During the week ended Sept. 24 the total output was 1,754,000 net tons. Demand is holding well, in spite of the unseasonably warm weather. Independent quotations on the larger sizes range up to 50c. or more above company circular.

ANTHRACITE RECEIPTS IN NEW ENGLAND, JANUARY-JULY, 1921
(In Net Tons)

	Tide	Rail	Total
January	315,000	644,000	959,000
February	350,000	764,000	1,114,000
March	304,000	899,000	1,203,000
April	306,000	599,000	905,000
May	374,000	667,000	1,041,000
June	387,000	685,000	1,072,000
July	309,000	652,000	961,000
Total	2,345,000	4,910,000	7,255,000
Total 1918	.....	.....	8,231,000
Total 1919	.....	.....	5,658,000
Total 1920	.....	.....	6,072,000

Coal Age Index 88, Week of October 3, 1921. This diagram shows weekly changes in the spot prices of bituminous coal in the United States as a whole. All prices are reduced to one figure and compared with the average government price of 1918, taken as 100. Actual spot prices for each coal are given in the table in this review.



COKE

Production of beehive coke again shows a slight increase. The output for the week ended Sept. 24 was 68,000 net tons, 4,000 more than in the preceding week. Connellsville operations are much encouraged by the better line of inquiry that has developed and the market has definitely sought a higher level. Supporting the increased prices is a fairly lively demand, although the competition from byproduct coke is still heavy.

Foreign Market And Export News

Coal Paragraphs from Foreign Lands

GERMANY—Ruhr production during the week ended Sept. 17 was 1,768,718 metric tons, according to a cable to *Coal Age*. Production has been running around this figure for the last three weeks.

SWEDEN—Arrivals of coal at Stockholm were 19,200 tons in the week ended Sept. 17, of which nearly 15,000 tons came from England.

HOLLAND—The following are among the latest quotations: British steam coal, c.i.f. Rotterdam, 18 gulden or 32s. American gas coal, c.i.f. Rotterdam, 22½ gulden or $7.

SPAIN—The Asturian market has advanced a trifle since last quotations. Prices now stand at 100 pesetas for screened, 90 for large and 75@80 for smalls, f.o.b. Gijón.

AUSTRIA—The situation in Upper Silesia continues to react unfavorably on the Austrian coal market according to a review by the *Guaranty Trust Co. of New York*. Austrian firms were formerly large buyers of Polish coal of Silesian origin. The Germans, who are now in possession of the coal fields of this district refuse delivery to Poland. This has resulted in an unwillingness on the part of Poland to export any coal, even though that country is reported to have coal of her own to the extent of 20 per cent above her requirements, and to have helped herself so liberally to Upper Silesian coal during her occupation as to overstock the market.

Hampton Roads Accumulations Reduced; Cargoes Are Scarce

Reduction of stocks at Tide is the outstanding development of the week's coal business here, only approximately 175,000 gross tons being on track. Release of large quantities of distress coal from demurrage, with the consequent lessening of pressure on the market from this source, has not taken effect in price reductions to any marked extent.

The New England and bunker business continues to sustain the market. During September approximately 600,000 tons went to New England, which is only 200,000 below normal.

Much of the bunker business is being handled on contract. Vessel tonnage awaiting cargo was approximately 40,000 tons this week, with a like amount in sight for immediate arrival. Foreign cargoes, however, are rare, with no shipments scheduled except to the West Indies and Mediterranean ports.

Local shippers are concentrating their efforts on coastwise and bunker business, the latter showing signs of steady improvement and the coastwise trade holding its own. Reports of additional revivals in industry in the North are received as a sign of the improvement in business which is becoming the mainstay of the market.

PIER SITUATION

	Week Ended Sept. 22	Week Ended Sept. 29
N. & W. Piers, Lamberts Point:		
Cars on hand	1,217	1,353
Tons on hand	69,024	25,355
Tons dumped for week	93,486	99,741
Tonnage waiting	11,850	25,000
Virginian Ry. Piers, Sewalls Point:		
Cars on hand	1,164	1,386
Tons on hand	83,200	69,300
Tons dumped for week	54,421	76,000
Tonnage waiting	8,200	11,605
C. & O. Piers, Newport News:		
Cars on hand	1,165	1,401
Tons on hand	83,250	70,000
Tons dumped for week	49,290	41,482
Tonnage waiting	2,845	2,300

British Producers Cutting Export Quotations

France Flooded with Low British Offers—England Considers Extension of Export Credits—Controversy Over Interpretation of British Mines Subsidy

Production in the United Kingdom during the week ended Sept. 17 was 4,161,500 gross tons, according to a cable to *Coal Age*. This compares with an output of 3,940,000 tons in the week preceding.

Plans for enlarging the export credit project are under consideration by the Government. Prior to this time these credits have been confined to the countries of Eastern Europe whose financial state was such that it was difficult to do business with them. South America and Far East points are being considered in this plan, which would greatly strengthen British foreign trade.

Exporters are actively canvassing for business and are making more inroads in markets of the French mines. Scandinavian countries have been productive of recent business and price reductions have strengthened the demand.

The Cardiff Mines Department has decided that operators are liable for over 97 per cent of the September wages paid instead of 46 per cent as estimated by producers. Several companies have withdrawn their quotations and there is a possibility of many workings being closed. The Government, according to the statement issued, will only pay about 6d. per day toward the men's September wages and the owners are unwilling to face losses which would follow a continuation of production.

Notwithstanding this, it is felt that to place consumers — especially the French industry—in a favorable position, prices must be still further reduced. Buying of house coal is still slow, owing to the continued mild weather.

The Government has again issued new regulations in regard to industrial coke. The price will be 125 fr. at the works for all classes of consumers, but in the case of blast furnaces, this price will be reduced by about 30@40 fr., in the shape of an equivalent compensation paid by the Government.

Much nervousness still prevails on account of the uncertainty in regard to the question of prices on coal supplied by Germany under the Reparation Act. Certain conclusions of the Financial Conference, last held in Paris, not having been approved by the French Government, it looks as if the question will have to be opened again. No one knows at present whether the arrangements arrived at, and which gave France full satisfaction, will again be agreed upon.

The market is still flooded with low British offers. However, it is likely that the recent sharp rise of British currency on this market will deter some buyers who had been seriously negotiating for the purchase of British coals.

French production for July is about 70,000 metric tons short of the figures for June, while the Saar output increased about 40,000 tons, as shown in the following table:

	France	Saar
Coal and lignite	2,327,976	889,656
Consumed at mines	315,725	119,019
Supplied to mines' coke plants	71,902	15,835
Supplied to briquet works	187,790	2,067
Mine stocks, July 31	1,256,272	242,165
Mine Stocks, June 30	1,190,035	269,229

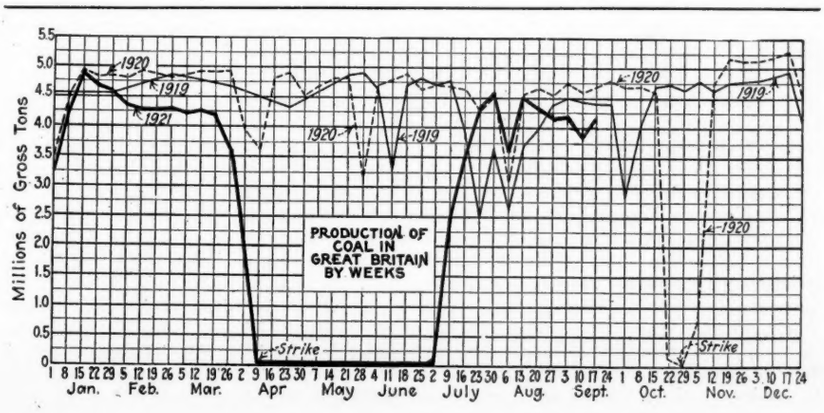
FRENCH IMPORTS IN JULY

From	Metric Tons
Great Britain	49,000
Belgium	198,000
United States	60,000
Germany	1,503,000
Sarre region	7,000
All others	28,000
Total	1,845,000

French Mine Costs Lowered; Reparation Coal Again Under Discussion; Industrial Coke Prices Reduced

Welsh quotations, as cabled to *Coal Age*, on Oct. 3, ranged 250@300 fr., delivered at Marseilles. There are no stocks of American coal at that port.

There are still numerous complaints about the dearth of home-produced coal. Wages at the mines have been lowered by three francs per day, and this was immediately followed by a reduction in prices of ten francs per ton.


PRODUCTION OF COAL IN GREAT BRITAIN BY WEEKS
Millions of Gross Tons
1920
1919
1921
Strike
Jan. Feb. Mar. Apr May June July Aug. Sept. Oct. Nov. Dec.

Japanese Coal Production

Total production of bituminous coal in the Government mines of Rukicoga, Yamaguchi, Saga and Nagasaki in the southwestern part of Japan were 18,578,000 tons in 1920 as against 19,613,000 in the previous year. Of this total the respective shares were as follows: Rukicoga 14,544,000 tons (15,457,000 in 1919), Yamaguchi 1,186,000 tons (1,206,000 in 1919), Saga 1,617,000 tons (1,852,000 in 1919), and Nagaski 1,231,000 tons (1,098,000 in 1919). During the second part of the year several mines had to be shut down altogether, which is responsible for the smaller output in 1920. At the beginning of 1921 an additional number of Government collieries had to shut down.

Export Clearances, Week Ended Sept. 29

FROM HAMPTON ROADS:

For Brasil:	Tons
Am. SS. Liberty Glo, for Pernambuco	3,470
Br. SS. Tresillian, for Buenos Aires	4,690
For Canada:	
Am. Schr. Mary Manson Gruener, for Bathurst, N. B.	943
Nor. SS. Gaute, for Bathurst, N. B.	2,803
Am. SS. Hilton, for Three Rivers	4,366
Am. SS. Annetta for Cayo Mambi	550
Du. SS. Samarinda, for Sabang, Java	5,110
Am. SS. Kenwood, for St. Georges	1,271

Pier and Bunker Prices, Gross Tons

(Foreign Bunker Quotations by Cable to Coal Age)

	Sept. 24	Oct. 1†
PIERS		
Pool 9, New York	$5.75@$5.85	$5.75@$5.85
Pool 10, New York	5.50@ 5.60	5.50@ 5.60
Pool 9, Philadelphia	5.80@ 6.00	5.80@ 6.00
Pool 10, Philadelphia	5.40@ 5.70	5.40@ 5.70
Pool 71, Philadelphia	6.00@ 6.25	6.00@ 6.25
Pool 1, Hamp. Rds	4.90@ 5.00	4.90@ 5.00
Pools 5-6-7 Hamp. Rds.	4.40@ 4.50	*4.25@ 4.40*
BUNKERS		
Pool 9, New York	6.10@ 6.20	6.10@ 6.20
Pool 10, New York	5.85@ 5.95	5.85@ 5.95
Pool 9, Philadelphia	6.10@ 6.30	6.10@ 6.30
Pool 10, Philadelphia	5.75@ 6.00	5.75@ 6.00
Pool 1, Hamp. Rds	5.00@ 5.10	5.00@ 5.10
Pool 2, Hamp. Rds	4.80@ 4.90	*4.75@ 4.85*
Welsh, Gibraltar	50s. f.o.b.	*47s. 6d. f.o.b.*
Welsh, Port Said	64s. f.o.b.	*56s. 6d. f.o.b.*
Welsh, Singapore	75s. ex. wharf	*70s. ex. wharf*
Welsh, Rio de Janeiro	75s. f.o.b.	*65s. f.o.b.*
Welsh, Algiers	50s. f.o.b.	*45s. f.o.b.*
Welsh, Malta	60s. f.o.b.	*50s. f.o.b.*
Welsh, Lisbon	57s. 6d. f.o.b.	*57s. 6d. f.o.b.*
Welsh, La Plata	70s. f.o.b.	*60s. f.o.b.*
Welsh, Madeira	57s. 6d. f.a.s.	*52s. 6d. f.a.s.*
Welsh, Teneriffe	57s. 6d. f.a.s.	*52s. 6d. f.a.s.*
Welsh, Genoa	58s. t.i.b.	*55s. t.i.b.*
Durham, Newcastle	35s.@37s	*35s.@37s*
Belgian, Antwerp	110 fr.	*110 fr.*

C.I.F. Prices, American Coal

(In Gross Tons)

	Sept. 24 Low Vol.	Sept. 24 High Vol.	Oct. 1† Low Vol.	Oct. 1† High Vol.
River Plate	$9.90	$10.30	.....	.....
French Atlantic	9.10	9.45	*$8.75*	*$8.50*
United Kingdom	9.10	9.45	*8.80*	*8.60*
West Italy	9.30	9.70	*8.90*	*8.60*
Scandinavia	10.85	11.20	*9.70*	*9.25*
Cuba	6.10	7.40	.....	.....

These quotations are purely nominal and as far as can be learned, no business is being done in these markets.

Current Quotations British Coals f.o.b. Port, Gross Tons

Cardiff	Sept. 24	Oct. 1†
Admiralty Large	31s. 3d.	30s. @32s 6d
Steam, Smalls	19s. 3d.	*17s.6d@19s.*
Newcastle:		
Best Steams	29s.	*27s. 6d.*
Best Gas	28s.	*27s@28s.*
Best Bunkers	27s. 6d.	*27s.*

†Advance over previous week shown in **heavy type**, declines in *italics*.

Reports From the Market Centers

New England

BOSTON

Better Market Tone, but No Real Improvement in Demand—Barge Freights Reduced on Bituminous — Consumers Buy Only Sparingly — Anthracite in Better Request.

Bituminous — Representative men in the trade talk somewhat more hopefully of the outlook for steam grades, but this is based chiefly on the fact that fewer low quotations on all-rail coal are heard now than was the case a fortnight ago. To the extent that less "distress" coal is offering at Tidewater there is also a slight improvement in that direction, although the number of recent purchases limits very materially the volume of coal that can now be absorbed even at bargain prices. There has been no such increase in production of manufactured goods to warrant any broader market than would be represented by consumption during the same period.

At points so far inland as the Connecticut River there have been shipments of Hampton Roads coals that were rehandled at Boston, and this will show graphically the expanse of territory over which the Southern coals have spread this season. At Bangor, Maine, for instance, where the minimum Clearfield tariff is $6.82, there have been quotations of $6.15 alongside (gross tons) for Pocahontas and New River. This is an extreme case, but it is easy to see that with mining costs so much less in West Virginia than in most sections of Pennsylvania the average shipper of Cambria, Somerset, and Clearfield coals may as well bow himself out until the situation is radically changed.

In territory that continues to be regarded as strictly an all-rail preserve there is only the same light scattering demand. Numbers of small buyers are entering their orders, the signs of cooler weather having persuaded them there is small hope of lower prices. More and more the operating interests are adopting the policy of a fixed minimum price below which they will not quote and what faith there is in the current market is due to that practice.

Momentary interest was aroused by the announcement of the P. & R. Ry. that effective Oct. 1, temporarily, the rates on bituminous in company barges, Philadelphia to Eastern points, would be reduced 50c., making the new rate to Boston $1.10, instead of $1.60 as formerly. With outside marine freights from Norfolk and Newport News still quotable at 85c.@$1 on barges of 2,000 to 4,000 tons, and Navy acceptable coals offering at $4.75@$5 f.o.b. vessel at the Roads, it is clear that the new rates on Reading barges will hardly result in much increase of tonnage via the Philadelphia piers.

Even at the low range of quotations on Pocahontas and New River, the tonnage absorbed begins to show a decline. Most of the sales are of smaller tonnage than a fortnight ago. Then, too, there has been widespread complaint of preparation, due doubtless to the effort of smokeless operators to concentrate mining in two to three heavy days per week. In other words, many of the larger consumers are a bit weary of being pressed to buy, and are disposed now to go light on purchases.

Anthracite—Domestic sizes are now all in fair request, although egg and pea with several of the shippers are hard to move.

For the first time in the present calendar year retail prices in Boston were advanced 50c. per net ton on sizes from broken to chestnut, making the new figures $15.50 for stove and chestnut and $15.25 for broken and egg. Pea size remains unchanged at $13.

Tidewater—East

NEW YORK

Warm Weather Retards Anthracite Market — Barley Scarce — Bituminous Market Quiet — Trade Conference on Export Situation.

Anthracite — With the exception of stove and chestnut, the demand for anthracite is not as strong as it should be at this time of the year. Stove coal at times is only sold by some shippers when taken in conjunction with other sizes. Chestnut is gaining strength steadily and is in heavy demand by the line trade.

Outside of pea coal, egg is the weakest of the domestic grades. There is plenty available, even the companies finding it the hardest to move. It was reported that considerable was being sent to the storage piles.

Pea coal is accumulating rapidly. Some distressed pea was quoted $4.50@$5, although the average quotations were about 50c. higher. Other independent and company quotations are shown in the Weekly Review.

The steam coals, with the exception of barley, remained quiet. Barley was scarce and the quotations for the independent product remained close to company schedule. The low prices asked for the cheaper grades of bituminous coals was given as one reason for the slow movement of buckwheat, it being stated that some consumers were using these grades instead of anthracite. Rice was not much stronger. Some shippers were refusing orders for these coals for shipments extending a couple of months ahead.

Bituminous — The market seems asleep. There is no activity and nearly everybody acts as if waiting for something to happen. Were it not for the demand along the line it does not appear as if it would be necessary for the mines to work as steadily as they do. There is no large amount of coal here, due to the refusal of shippers to have coal sent to Tidewater unless there is a strong possibility of it being sold at once.

While spot business has not become stronger there have been many inquiries and some small tonnages have been booked for shipment a couple of months ahead. The efforts to introduce bituminous for household consumption in the nearby cities and towns are being continued and some success is reported.

There is a strong belief that consumers will go short of fuel this winter unless they soon begin to stock up. Public utilities are reported as taking in heavy supplies but the industrial user is not heeding the warnings of the railroads and producers.

There has been no change in the export market but hopes are expressed that freight rates can be reduced sufficiently to put the American trade on a competing basis again with English producers.

Quotations for various coals were heard as follows: Ligonier, around $1.70; Miller Vein "B," $2.10; Westmoreland gas ¾-in., $2.75@$3; slack, $2@$2.25, and Kentucky cannel, $6@$6.25.

PHILADELPHIA

Anthracite Demand Checked by Warm Weather — Rumors of Stove Price Increase—Steam Improves—Bituminous Demand Light — Railroads Storing — Market Prices Firm.

Anthracite—Unusually warm weather has sapped much of the demand. The changed conditions in the city were soon felt by the shippers and they have lately been hard pressed to take care of production, as dealer after dealer was compelled to hold orders.

The trade has been quite anxious as to prices for October, but as usual the companies have delayed announcing their schedules. While it is believed that no radical changes would be made in company coal, there is, however, a persistent rumor that one of them at least intends to make a considerable advance on stove in order to relieve the pressure which has been on that size all season. The same report has it also that pea coal would be reduced.

It would seem that the time has arrived when a better call for steam coal has set in. Buckwheat is in good demand; in fact independent buckwheat is being sold close to the circular price of $3.50. While rice has improved, it is believed that barley has done even better. There has recently been a great

increase in the installation of improved stoking devices using this size and good shipments to meet the demand have recently been coming into the city.

Bituminous — With Oct. 1 reached and passed with no pronounced improvement, the soft coal people are wondering just when the real demand will set in. Some interests consulted are actually fearful of a sudden demand that will be of no benefit to any one.

The trade is certainly undergoing changes that no one had ever anticipated. We know of producing houses with mines shut down who are buying coal from other producers at a price less than the purchaser could mine it. One thing is certain and that is the strictly brokerage house, with no mining overhead, is the only factor in the trade making any money these days.

Railroads recently have been storing up on high-volatiles in anticipation of a possible rail strike. They claim they do not expect any trouble, but they are taking advantage of conditions to lay by some stock. Most of this coal is being taken at contract prices ranging $2.60@$2.75.

The spot market shows no changes of note, although the good grades gain in firmness from week to week. Most of the trading, at least 80 per cent, is of Pool 9 and 10 fuels.

BUFFALO

No Real Improvement — Some Better Industrial Conditions — Stronger Demand for Iron—Anthracite Slow with Warmer Weather.

Bituminous — Demand does not increase. As a rule, the shippers report September to have been less active than recent months. There are plenty of daily paper notices of this or that plant starting up, but nothing is said of the cause of activity.

It is probable that more iron will be turned out here in the next three months than has been during the last three, but it also appears that stocks have run down pretty badly. Everybody is hopeful, but no one is predicting activity to any great extent right away. Meanwhile the average business man will keep going at such a pace that he will be ready to take advantage of the stir.

It is hard to size up an industry that is so devoid of new points as is the case with coal. The fact is that the report of six months ago would answer in almost every respect for today.

Bituminous prices continue at $3 for Youghiogheny gas lump, $2.75 for Pittsburgh and No. 8, steam lump $2.50 for Allegheny Valley and other mine run, $1.75@$2 for slack, adding $2.36 to Allegheny Valley and $2.51 to other coals for freight.

Anthracite — The unusually warm September has no doubt shut off buying considerably, although the disposition to purchase at all liberally has been lacking since April. The independent operators, who used to get $3 or more premium and will no doubt get it again next winter, are in great part idle now, because they cannot run at a profit. They are selling at about 30c. under the old-line prices and getting a slow trade at that. The regular supply has run down some, but is still fair, and in the absence of the strike of a year ago, shows an increase of production.

Lake—The movement is not what it was a month ago, but it may have been found that the amount already forwarded was too much in excess of last season. Loadings for the week ended Sept. 28 were 100,320 net tons, distributed as follows: Duluth or Superior (shipper's option after sailing), 42,400; Chicago, 21,600; Milwaukee, 16,200; Fort William, 10,500; Racine, 8,000; Hancock, 1,620. Excess tonnage caused by the big rush of grain keeps freight rates easy at $1 to Racine, 75c. to Hancock, 65c.@70c. to Chicago, 60c. to Milwaukee, 50c. to Duluth and Ft. William.

Coke—The market is still somewhat disturbed by conditions in the Connellsville district, but demand has not increased. Asking prices are a trifle more than formerly, being $4.50@$4.75 for 72-hr. foundry, $3.75@$4 for 48-hr. furnaces, $3.25 for stock and $4 for chestnut-size domestic, adding $3.64 for freight.

BALTIMORE

Export Situation Poor — Soft Coal Trading Slightly Increased—Anthracite Movement Declines Further.

Bituminous—The export situation is not only unsatisfactory but it is indicative of the general trend of the market. During September, there was shipped from Baltimore a total of 25,443 tons cargo on five ships and 2,895 tons bunker on four ships. The American flag was missing in this movement, as three of the ships were British, one Japanese, and one, a bark, Brazilian. The coal went to the following countries: Argentina, 12,106 tons; Italy, 5,614 tons; France, 7,207 tons; and Brazil, 506 tons.

In the local market there is a slight stimulation. Prices for best steam coals still hang around $2.50@$2.75, while the best grade gas lump is on the market around $2.35@$2.50. Lower grade coals, both steam and gas, but still of desirable variety, range $2@$2.40. Lowest grade steam and gas is $1.50@$1.75.

Anthracite—The householder is not buying in the quantities which should mark this season, even if there were no shortage of supplies in cellars. When it is considered, however, that the Baltimore district is now short by more than 120,000 tons of normal in cellars and yards for the start of October, the seriousness of the situation can be realized if a hard winter comes on.

September receipts fell off from those of August, instead of increasing. Dealers cannot figure how they will be able to supply demand if everybody wants coal at one time. The fact that money is not free in many homes is likely to lead to one and two ton purchasing, however, and this will have a tendency to stretch buying over the winter months. Even this, however, will not prove a complete panacea for the trouble.

Northwest

DULUTH

Smaller Coals Break in Price — Good Country Movement — Cargo Receipts Lighter—Iron Range Trade Slow.

Increased shipments from the docks together with sharp and somewhat demoralizing breaks in buckwheat and screenings featured the Head-of-the-Lakes market this week. Decreased receipts and absolute inactivity among the large consumers of the Mesaba iron range were also noted. Dockmen, however, predict that any surplus supplies left on the docks next spring will be needed as a stop-gap to a possible shortage and late shipments.

Screenings dropped from $4 to $3.50 and buckwheat from $7.50 to $6. All other coal prices are remaining firm with no indication of a break, and tendencies are toward a strengthening market.

An increase in shipments is most noticeable and September will see the August record of 20,000 cars smashed. Country buyers generally are taking all the coal possible and are showing a disposition to co-operate in the movement to clear the dock congestion. They are handicapped, however, by a lack of funds and a curtailment of bank credits.

Discouraging reports have been heard from sales agents who have toured the iron ranges recently. But few companies are operating and those who are moving ore are buying their coal from the surplus stocks of the companies who have closed down.

Last week twenty-four cargoes arrived here, of which five were anthracite, and twelve are reported on the way, four being hard coal. Docks are being kept open by this shut-off and it is not necessary to tie boats up in the harbor waiting for a chance to unload.

MINNEAPOLIS

Domestic Buying Restricted to Small Lots—Steam Users Secure Bargains—Industrial Consumption Slightly Heavier.

Killing frost has not struck the Twin Cities at this writing, and until it does, there will be no real rush of retail orders. It appears as though the ultimate consumer is as obstinate in his coal buying as in anything else that he will or will not do. He is buying as he sees fit. This has resulted in smaller orders right through and will extend the distribution of tonnage over a broader field. So long as this keeps

up, and the round of deliveries is uninterrupted, it will mean less complaint, perhaps, than when larger loads were sent to one address. And if the mild weather is prolonged long enough, the retailers will get through the rush period with little trouble.

Steam buyers are simply holding back until the last minute and are shopping for cheap coal in every way possible. More than that, they are getting frequent purchases at bargain figures. Between keen competition and some demurrage coal, they are scoring rather often.

So far there has been but a limited pickup in industrial operations. The general tendency is to delay buying of commodities of all kinds, and this means that manufacturing is held back accordingly. It is far from assured that there will be any material increase in manufacturing in the near future. The deflation period in costs has taken away all incentive to buy until it has become imperative. And under the commercial conditions now prevailing, it takes quite a while for buying of commodities to become necessary.

There is not even the incentive of a threatened shortage left to urge early buying. The only lugubrious possibility left is a car shortage, and that is being brought out and dusted off in some quarters. But it will take a considerable increase in rail traffic before this becomes imminent.

MILWAUKEE

Moderately Increasing Demand — Survey Allays Fear of Coal Famine — Municipalities Going Into Coal Business.

Demand shows a moderate increase, but it will take a spell of sharp weather to inject real life into the market. An announcement by the State Division of Markets that no decrease in the price of anthracite can be expected, will, no doubt, have a good influence in stimulating a proper demand and relieving the dock storage situation.

As a result of a survey of the coal situation, state officials announce that there is no danger of a coal famine during the coming winter. The survey developed the fact that the price of anthracite is considered too high by dealers, but that they are powerless to remedy the condition, inasmuch as the price is dictated by Eastern producers. Coal companies at Milwaukee, Racine, Superior and Ashland average 35c. per ton net profit. The larger the concern, according to the survey, the smaller its profit.

The City of Superior, Wis., is offering hard coal at $14.50 for chestnut, and $12.50 for pea size, delivered, the price being $1 under that set by retailers. Soft coal will also be sold by the municipality.

September receipts by Lake thus far aggregate 102,492 tons of anthracite, and 158,892 tons of soft coal, making the season's receipts 747,722 tons of the former, and 2,005,072 tons of the latter.

Inland West

CINCINNATI

More Activity in Domestic Market—Smokeless Shows Wide Range—Retail Prices Vary.

Southeastern Kentucky operators, who have on several occasions been leaders in price cutting, were again active this week, and as a result of increased orders for prepared coal and the figures they named, slack could be bought under $1. Lake buyers are practically out of the market and what movement there is in that direction has been on contract.

Some smokeless dealers have been inclined to follow the Western markets, which were weaker. Spot sales have quite a range but the general price seems to be $4.25@$4.50 for lump, nut $3@$3.50, mine run $2.25 up, and slack $1.25 up.

Slack was about the only grade that changed price in the bituminous market, spot sales being $1@$1.10 and mine quotations $1.15@$1.35; mine run could be had freely at $1.50 for Kentucky and up to $1.75 for West Virginia. Southeastern Kentucky lump and block still holds around $3@$3.50, while West Virginia splint and gas can be had around $2.75, with better grades bringing up to $3.50.

Retail prices are: Smokeless slack $6.75, mine run $7.50, lump $9.50@$10.25; bituminous, lump $7.25, mine run $6 and slack $5.50.

CHICAGO

Retail Yards Full—Domestic Rush Predicted — Steam Trade Gets Bargain Prices.

The opening of the fall season finds the average householder in Chicago practically unsupplied with coal. The retail dealer has his bins full, but should there be a rush for coal, as is bound to come, it will be found that there is not three weeks' supply on hand. This is a fairly radical statement, but it is made only after a very careful investigation. Experience has shown when a retail dealer once gets his yard emptied in the face of a great demand, it is very hard to fill his bins once more.

The steam situation is no different than it is throughout the country; in short, there is so little manufacturing activity that steam coals are a drug on the market. Very close prices on 2-in. screenings and on smaller size screenings have been made this week. Operators in Illinois, especially, who have been storing their screenings all summer, have now reached the point where they have to move these great quantities and competition has been extremely severe. It is a noteworthy fact, however, that a great deal of the coal sold at low prices has proved upon inspection to be freshly mined.

The Chicago trade is once more being swamped with circulars offering smokeless coal at bargain prices. This has brought very little business as the trade has as much coal on hand as it can stand. Some enterprising dealers, however, have leased ground along their sidings and are taking advantage of cheap prices, buying coal at a bargain and storing it on the ground.

CLEVELAND

Conditions Point to Buying Impetus—Retail Trade Gradually Improving—Lake Tonnage Expected to Increase.

It is predicted that by the middle of October a fair degree of industrial buying will begin. This is based upon such considerations as the perceptible improvement in various lines of manufacture, the excessively low stocks at industrial plants, and the nearness of cold weather. Another influence which is expected to give some impetus to buying is the possibility of a railroad strike. Such an eventuality would cause a coal shortage to develop almost overnight because of the lack of surplus stocks in Cleveland.

Industrials are continuing to inquire for coal, but hand-to-mouth buying is the order of the day. One dealer says that some of his customers are running so close to the margin that if a car of coal happens to be twelve hours late in delivery a call is sent out to hurry it up. Slack coal is somewhat weaker. Other grades remain unchanged.

September Lake shipments dropped about 750,000 tons from the August total, the aggregate movement being 2,250,000 tons. An increase is expected to develop this month and the season probably will be ended by Nov. 1.

Receipts of bituminous coal during the week ended Sept. 24 were 1,014 cars, divided: Industrial 686, retail 328; as compared with the total of 1,159 cars the preceding week, a decline of 145 cars.

Retail delivered prices follow: Anthracite egg and grate $14.20, chestnut $14.15, stove $14.20@14.40, Pocahontas shoveled lump $11.25, mine run $9@$9.25; domestic bituminous, West Virginia splint $9.25; No. 8 Pittsburgh $7, cannel lump $11.50; steam coal, No. 6 and No. 8 slack $4.25@$4.50, No. 6 and No. 8 mine run $5.50, No. 8 3-in. lump, $5.75.

ST. LOUIS

Sudden Stiffening in Domestic Demand —Prices Advance — Steam Market at Standstill.

The past week with its talk of a railroad strike and an advance in retail prices has caused a demand for domestic fuel. Carterville is moving fairly well, but many former users are going to cheaper coals. This has favored Mt. Olive and Standard. Business is just slowly approaching what it should be.

Anthracite is quiet. There is no smokeless moving, but coke, both gas and byproduct, is doing well. This fuel is taking the place of Carterville coal to a large extent.

There is so little steam business that it does not count much. No storage

coal is going in to any extent anywhere. A slowing up in equipment is noticeable at certain points.

Coal advanced on Sept. 20 around 25c. Another increase is expected on some grades shortly if Standard and Mt. Olive are raised at the mine, and Standard must advance. Present retail prices are: Carterville, $7.75; Mt. Olive, $6.50; Standard, $5.50.

DETROIT

Hand-to-Mouth Steam Buying—Domestic Movement Better—All Receipts Are Light—Anthracite Demand Stronger.

Bituminous—Offerings of high grade bituminous are not arousing the interest among Detroit buyers that wholesalers believe it is reasonable to expect, in view of the limited volume of buying throughout the greater part of the year. While some have a moderate reserve accumulation others are seemingly proceeding on the assumption that coal will be available in the spot market whenever they find purchases necessary.

Some of the steam plants are buying in small lots and only when bargains are offered. Jobbers say it is unreasonable to expect continuance of the present free movement of coal after winter interferes with transportation facilities.

West Virginia 4-in. lump is quoted $3.25, 2-in. lump at $3, egg at $2.50, mine run at $2, nut and slack at $1.50. Three-inch Ohio lump is $3.25, 2-in. $3, egg, $2.50, mine run $2, nut and slack $1.35. Pittsburgh No. 8 three-quarter lump is $2.40, mine run $2.10, nut and slack $1.65. Smokeless lump and egg is $5.25, mine run $2.90 and nut and slack $1.60.

Anthracite — Orders from domestic consumers are coming to retail dealers very slowly. Yard stocks are at present of fair proportions, but should cold weather bring a rush of buyers, the available supply may disappear speedily.

COLUMBUS

Domestic Is Somewhat Spotty, Although Improved in Cities — Steam Trade Quite—Prices Fairly Steady.

Domestic demand is rather unsteady. Operators and jobbers report a good call for a few days and then a reaction, with business slowing up considerably. Retail trade is fairly good, although weather conditions have been unfavorable. Householders are buying actively, however, and many are asking for the higher grades such as Pocahontas and New River. Hocking and Pomeroy grades are also moving fairly well. Retail prices are firm. Hocking lump retails at $6.50, West Virginia splints at $7.50, Pocahontas at $9.50, and anthracite at $15. Coke is quoted around $11.50 for all sizes.

Steam business continues slow and screenings are a drag on the market. Railroads are not doing much toward buying and the same is true of large steam plants, with the exception of public utilities. Some reserve stocks are still held and this is a disturbing factor. Prices for screenings have been reduced to low levels.

Lake trade is still slow. Some coal is still being shipped although indications point to an early closing of the season. The H. V. docks at Toledo during the week ended Sept. 24 loaded 91,790 tons as compared with 114,944 tons the previous week, making 3,365,471 tons for the season. During the same week the T. & O. C. docks loaded 31,152 tons as compared with 35,605 tons the previous week, making a total of 885,260 tons for the season.

South

BIRMINGHAM

Demand Sluggish for All Grades—Slight Price Changes—Operating Conditions Somewhat Improved.

The trade continues to subsist mostly on hope of better conditions, but when it comes to material improvement little change is to be found in the status of the market. Consumers continue to hold off except to provide for needs as they can forecast them in the immediate future, partly because they have no urgent requirements for large tonnage, and also because the belief prevails in some quarters that there will be a reduction in freight rates later on as a result of the order issued to the railroads by the Alabama Utility Commission to appear and show why reductions should not be made in various transportation charges, including coal. However, coal men are sure that no relief will be afforded in this direction for some time to come.

Buying is all of a spot character and tonnage requirements are comparatively light from the commercial field. Prices are shown in the Weekly Review. The domestic situation is without change, there being little wholesale demand due to the stagnant retail market.

Operations are somewhat improved by the demand from furnaces and coke operations which have been resumed to some extent. Commercial mines and domestic plants, however, are working on short and irregular schedules.

LOUISVILLE

Market Generally Weaker—More Distress Coal Depresses Prices—Slower Domestic Movement.

The past week has brought little but gloom to Kentucky operators and jobbers. Cooler weather has resulted in a much better demand on the retailers, but most of these have fair stocks, and are not buying. Industrial demand is very poor, and all steam grades are weaker.

Efforts made recently to increase prices of prepared sizes to $3.75 for the best grades, were followed by reductions down to $3.50 as the top price. Hazard screenings have slumped to as low as 75c.@80c., and Harlan screenings to $1.25, while mine run from eastern Kentucky, which has been holding well above $2, is quoted down as low as $1.75 for Hazard.

Conditions in the South are looking better, but there has been no material improvement in actual shipments or sales. Cotton mills and cotton-oil plants are expected to soon start buying more freely.

Consumers realize that the coal trade is in the dumps, and this is shown vividly, where when the consumer refuses a price, the salesman says, "Well, make us an offer."

News From the Coal Fields

Northern Appalachian

EASTERN OHIO

Production Declines—Outlook Improves as Iron and Steel Industry Picks Up—Temporary Lake Spurt Seen.

Production amounted to 326,056 tons during the week ended Sept. 24, which is 52.2 per cent of the rated capacity, thus registering a decrease of 16,000 tons under the preceding week. Accumulated figures for the year show an aggregate production of 12,784,171 tons which reveal that the mines have produced nearly 54 per cent of capacity.

Spot prices are firm. The railroads are not taking any less volume of coal, and if anything their requirements are increasing, as reports indicate that somewhere around 35 per cent of the production at the present rate is going to the carriers. More encouraging signs as to industry were in evidence during the week. The iron and steel mills, and especially those in the Mahoning Valley, embracing Niles, Warren, Youngstown, etc., are speeding up. While the majority of coal operators do not expect any unusual favorable developments within the next few months, they are, however, quite sanguine in the opinion that there will be a gradual and steady improvement, predicated upon a similar improvement in all lines of industry.

Lake coal loading is running along at about the same mediocre clip and some cut has been made in stocks on hand. The railroads are averaging less than 9,000 cars of cargo coal daily at the Lake front; dumpings average from 1,600 to 1,800 cars per day. Some dock operators feel that, in view of the recent relief in the congestion at the Upper Lakes, and the further fact that under present tariffs the reduced

rate on cargo coal from the mines to the lower docks expires at midnight on Oct. 31, a spurt in the movement is not unlikely during October.

CONNELLSVILLE

Operators More Anxious to Sell—Furnace Inquiry Light—Foundry Coke Demand Slowly Improving.

Operators are more anxious than formerly to do business, several being desirous of getting ovens started even though little profit is involved, and thus there has been quite a change in sentiment in the past few weeks, since recently the almost universal disposition was to sit still and wait for demand to come back in volume.

In spot furnace coke there has been very little business, but there has been an improvement in the demand for small lots for outside uses, with slightly better prices paid particularly on single carloads, which have not infrequently brought $3.50 to dealers, who closed with operators at $3.35.

In contract furnace coke inquiries recently said to be in the market have disappeared. In one or two cases purchases of byproduct coke were made from steel works, while in others the furnaces involved have probably postponed the contemplated blowing-in.

Demand for foundry coke for prompt shipment has continued to grow steadily and there is now a rather fair movement for a spot market, but the tonnage is small when one considers that there are scarcely any contracts in force so that nearly all the foundry coke consumed has to be bought in the open market.

We quote spot and contract furnace coke at $3.25@$3.50 and spot and prompt foundry at $4.25@$4.75. The *Courier* reports production in the week ended Sept. 24 at 14,400 tons by the furnace ovens, and 29,360 tons by the merchant ovens, a total of 43,760 tons, an increase of 2,390 tons.

PITTSBURGH

Production under One-Third Capacity —Demand Chiefly for Gas Coal—Some Improvement in Industry.

Production has been averaging between 25 and 35 per cent of capacity. The majority of the mines are closed entirely. Competitive prices made by nearby non-union fields is such that there is production in the Pittsburgh district only from specific reasons. There is the local domestic demand, supplied by river and short rail hauls. In gas coal the district has much trade that cannot go elsewhere, by reason of quality. There are some contract shipments in steam coal but the tonnage is small relative to normal, and finally there is still some Lake business.

Operators have been expecting a large increase in demand this fall and are somewhat disappointed at the small improvement that has occurred thus far. There is nothing new in the wage situation and little prospect that miners will make any concessions so as to put the district on a really competitive basis.

The industrial situation has distinctly improved in the past few weeks, but there is little reflection of this in increased demand. Quotable prices are the same as a week ago, being regular market prices on gas coal, but hardly more than asking prices on steam coal.

CENTRAL PENNSYLVANIA

Production Increases — Outlook Improved — Checkoff Injunction Suit Watched with Interest.

During the week ended Sept. 24, production averaged 2,340 cars per day, which is the highest since July 1. Indications point to a further increase. Prices remain unchanged.

Operators are watching with considerable interest the outcome of the injunction suits in the West Virginia field, instituted to restrain the operators from collecting the checkoff from miners. If the injunctions are granted it will bring producers face to face with the issue of stopping the collection of the checkoff, or facing damage suits. In this field, it is a part of the contract with the miner's union to collect the checkoff and failure to collect it will doubtless mean a walkout.

It is evident that if the miners' national convention adjourns without adopting a scale, the district convention on Oct. 18 will follow suit and the scale question will be deferred until some time in February.

UNIONTOWN

Pronounced Improvement in Coke Industry — Coal Market Steadies — Contract Inquiries Increase.

Further indications were given this week in the Connellsville region of return of the coal and coke industry to "normalcy." While the improvement is more pronounced in coke, the coal trade is also showing signs or recovery, a number of the smaller mines being placed on a productive basis.

The coal market improvement has not yet affected spot quotations, the basis remaining at $1.50 for steam and $2 for byproduct, most of the mines being opened having secured contract orders. There are yet no operators who are willing to resume operations upon the hope that the spot market will absorb tonnage produced at advantageous prices.

The coke market has definitely sought a higher level, the base for furnace coke now being $3.50. Supporting the increased prices is a fairly live demand.

Three large Frick plants, Trotter, Continental No. 1 and York Run have resumed operations, shipping raw coal to U. S. Steel subsidiaries. Those plants, together with Leisenring No. 1, are to be placed on a six-day basis. No Frick plants are making coke but a number of ovens were fired at plants of the W. J. Rainey, which after being idle for several weeks because of labor trouble, started mining coal for the company's byproduct plant at Swedeland, Pa. That the company has returned to coke making is considered significant of the returning demand.

ANTHRACITE

Demand Growing—Independents Find Ready Market—Operating Conditions Improve.

Independent operators are moving practically all sizes, and the demand for stove, chestnut and sizes under buckwheat is greater than the supply. There is a good call for other grades but this demand is somewhat intermittent.

As each week passes, operating conditions continue to improve. Of course, the closing of the Glen Alden mines and other smaller companies has had a tendency to decrease the supply, while the demand is increasing.

FAIRMONT AND PANHANDLE

Markets Show No Improvement — Heavier Distress Tonnage—Slack Hard to Move.

Fairmont

Market conditions showed no improvement during the week ended Sept. 24. Even inquiries were rather scarce There was much distress coal offering. This was especially true as to slack and unconsigned loads were accumulating rapidly in the northern part of the state.

Northern Panhandle

Aside from the small tonnage shipped to Northern and Inland West markets producers had little business to keep them going. Spot buying was almost at a standstill and slack coal was especially hard to move. The contract market was dormant.

UPPER POTOMAC

Operating Conditions Still Unfavorable—Prices Low and Outlook Poor.

Nearly all the mines remained out of commission during the week ended Sept. 24, owing to their inability to secure orders. With the prevailing non-union and lower mining rates effective in competitive fields, operators were not in position to secure even the small lots of spot business that were offered.

Middle Appalachian

LOW-VOLATILE FIELDS

Smokeless Fields Hard Hit by Tidewater Slump—Western Domestic Market the Main Spot Outlet—Slack Coal in Distress.

New River and the Gulf

Dullness was even more pronounced in the New River field during the week ended Sept. 24 and production did not exceed 40 per cent of capacity. Mines were not working more than two days a week. The surplus of cars was materially reduced as a result of the continued Western movement. With spot

buying curtailed, it was contract orders that kept mines going.

Gulf production averaged only 35 per cent of capacity. Operators were handicapped by a poorer Tidewater demand and prices were about as low as those prevailing throughout September.

POCAHONTAS AND TUG RIVER

Although the Pocahontas output was a little larger than during the earlier part of September, inability to find a market for the tonnage usually sent to Tidewater was hampering production to a great extent. The only spot market was in the West, consisting largely of prepared orders. Slack was off badly and retained its distressed position. Production was largely limited to filling contract orders.

Tug River producers held the output to about 80,000 tons, but there was little spot business available. The best movement was to Western points, which caused a shortage of cars at some mines. There was, of course, no market at Tidewater, and prices remained soft.

HIGH-VOLATILE FIELDS

Logan and Thacker Sales Improve—Warm Weather Halts Domestic Call—Railroad Fuel Loading Increases.

KANAWHA

Unconsigned coal flooded the market last week to such an extent that it prevented any improvement in conditions. Unseasonably warm weather had curtailed the demand for prepared sizes and there was a like recession in the call for slack coal.

LOGAN AND THACKER

Logan sales were on a larger scale during the week ended Sept. 24. This additional industrial demand made it possible for more operations to resume work. Prices, although not advancing, showed more firmness than in the past three weeks.

In the Thacker region conditions appeared a little better, although the output was not over 40 per cent of capacity. Open-market buying was still very limited and there was little if any coal shipped East. The best market was in the West, although railroad fuel loading was an important item. Labor troubles failed to interfere in any way with the production, mines having all the men needed.

NORTHEASTERN KENTUCKY

Most of the mines remained shut down. There was a slight increase in domestic demand but this was offset by a sluggish slack market, and the week's output did not reach 40 per cent of capacity.

VIRGINIA

It was impossible to get production above 50 per cent of capacity because of heavy "no market" losses. Producers were just about holding their contract orders, as there was practically no spot business to be had.

Middle West

MIDWEST REVIEW

Domestic Stimulated Slightly—Heavy Competition from Eastern Coals—Steam Market Unsatisfactory—Distress Among Miners.

More seasonable weather has succeeded in stimulating to a very mild extent the demand for domestic coal. However, conditions do not compare at all favorably with the same season in almost any pre-war year. Under ordinary circumstances, this time of the year sees a big domestic demand, which even in dull years cannot be taken care of promptly. This year the natural and usual demand is conspicuous by its absence.

Franklin County operators are holding their domestic coal at $4.05. In doing this they are laying themselves open to very keen competition from West Virginia and Kentucky operators who are selling their coals freely in the Northwest at lower prices. The difference in the cost at the mines just about wipes out the differential in the freight rate between the coals from the two competitive fields. As Eastern coal is generally of a higher grade than the Illinois or Indiana products, it can be very readily seen that the Middle West operators are suffering from this competition.

The steam coal market continues very unsatisfactory. Operators producing coal from the southern Illinois districts which are now favored by the steam buyers, have had to cut their prices on screenings as low as 70c. in order to find a buyer. The rather alarming desire for a strike on the part of some of the railway brotherhoods has made absolutely no difference in the demand for steam coals. Those in a position to buy coal in large quantities feel very strongly that the men cannot afford to call a strike at this time, taking into consideration the fact that there is so much unemployment in the country. Furthermore, purchasing agents are discounting all talk of a strike next spring. They claim the condition of the country is such that everyone, including the United Mine Workers, must take a reduction in wages. They figure that a great many mines have already taken a reduction, and it is only right and fair for the United Mine Workers to shoulder their share of the burden.

Many mines which have been down all summer are still idle while those in operation have been working on an average of only two or three days a week. One interesting angle from the point of the United Mine Workers is the fact that in spite of the high wage scale, the average miner is not being given an opportunity to earn anywhere near as much money as was made last year.

Miners are having great difficulty in making both ends meet in view of the fact that their incomes have been so seriously curtailed. It can be easily understood they are going to put up a serious fight next April in order to maintain their present scale. Actual disturbances on the part of miners, engineered and put over by radicals in the ranks of the United Mine Workers, have been growing less and no serious difficulties are expected in the near future.

SOUTHERN ILLINOIS

Sudden Activity in Domestic — Steam Lagging—Kentucky and Alabama Competition Narrows Market.

There is a diminishing market in the Carterville field for steam coal. How long it can go on is the question. Carterville screenings are well below $1. Cars are just a trifle slow at places, the first touch of the coming shortage.

Coal in storage may be a big winner within nine months, for the most elaborate fight to a finish that has ever happened is likely to be the one that opens up on April 1. The public seem to be in the dark on this issue as yet and when it does dawn on them it will, by its own action, cause a price condition that will perhaps compensate the operator for these summer months of leanness.

The Duquoin and Jackson County situation is somewhat similar in every detail to that of the Carterville field. It is understood that for the first ten days in October the price will not increase on lump and egg. In the Big Muddy field at Murphysboro good working time prevails, although screenings are in the way here, as elsewhere.

Mt. Olive working time averages four days or better. Steam moves mostly on contracts, but open market screenings bring $1. Country prices on domestic are about $3.75, city prices $3.

The Standard field is coming along in places. Some mines have been idle for a week at a time on account of congestion of screenings, which are down to 25c. Railroad tonnage shows up well. Average working time is two to five days. Shipments are pretty well scattered. The southern market of Louisiana, Arkansas, east Texas, Mississippi, west Tennessee, and Kentucky, as well as southeast Missouri is about lost to Illinois coal on account of high rates and higher prices than those of higher quality Kentucky and Alabama coals. This with the oil burners has almost eliminated Illinois from one of its former strongholds.

WESTERN KENTUCKY

Fair Domestic Demand at Steady Prices—Steam Coals in Distress—Business Showing No Material Improvement.

There is some little improvement in demand for prepared coal but the industrial call is weaker if anything, and screenings are selling at ridiculously low prices. This weakness has also resulted in some cutting on mine run.

Pea and slack have moved as low as 50c. This is distress coal, as the general average on screenings is $1.35, based on quantity business moving at 85c.@$2. While the mine run market is quoted at an average of $2.45, based on a range of $2.20@$2.75, some mine run is quoted at $1.95. Competition from southern Indiana, Illinois and eastern Kentucky has forced a lower market.

Operations are at about a two day average. Retailers have fair stocks in hand, and are holding back in buying additional supplies, as many are stocked to cover any normal demand until Jan. 1.

Many industrial concerns are burning only a small percentage of normal requirements, have fair stocks in hand, and are setting levels at which they will buy coal. This is well below the market and figured to catch distress shipments.

INDIANA

Slow Domestic Buying Retards Production—Labor Trouble Has Been Adjusted.

Production as a whole is more than 50 per cent of normal. The public is not yet buying coal in large quantities for winter consumption and until this trade picks up operators agree there will be but little improvement.

Mines in the vicinity of Terre Haute are working two and three days a week. The Bicknell field is working better than any other portion of the district. Trouble in Sullivan County has been adjusted and all the mines affected are at work.

Southern Appalachian

SOUTHEASTERN KENTUCKY

Domestic Prices Advanced — Steam Coals Sluggish—Retail Trade Subsiding.

More coal was produced in Harlan and Bell counties during August and September than in any previous two months in the field's history, but while many mines have a good number of orders for October, the best posted dealers are not so optimistic over prospects as they were ten days ago.

Prices on best domestic coal have been firm and an advance of 25@50c. is being asked by most operators for October. Resultant grades seem to be holding up, but mine run continues to drag and this week has experienced the lowest prices of the year.

West

UTAH

Production on Increase—Retail Trade Sluggish—Prices Unstable.

Production continues around 65 per cent of capacity with a slight tendency to increase. The following figures are given on production: First six months, 1,729,456; first six months last year, 2,863,450 tons. Retail business is unsteady.

Consumers in a great many cases still seem unable to make up their minds to fill their bins for winter use and it is estimated that less than 20 per cent of the winter coal has been ordered so far. The price situation remains unsettled and becomes more bewildering to the public every day, which no doubt accounts for so many consumers withholding their orders.

WASHINGTON

Resumption with Non-Union Labor Reduces Prices—Trading Brisk and Outlook Satisfactory.

Production in the commercial mines is steadily increasing, the output in the past week more than doubling that of the previous seven days. Following the resumption of work in the mines with non-union labor late in August, after most of the mines had been closed for five months or longer by a strike, the operators express entire satisfaction with the progress made to date.

In keeping with the promise made by producers that retail prices would be reduced with the inauguration of a lower wage scale, Seattle prices were recently cut from $1.60@$2.80 per ton.

A brisk demand for Washington coal has been noted following the price cut and the operators are confident they will be able to supply the domestic demand with little possibility of a shortage arising during the winter.

The directors of the **Burns Bros. Coal Co.**, New York, have called a special meeting of stockholders for Oct. 31 to consider a plan to merge the business of the **William Farrell Sons Co.** with their corporation. The new Burns Brothers "B" stock, which is expected to be exchanged for the shares of the Farrell stock, was traded in on the Curb Market recently on a when-issued basis.

News Items From Field and Trade

ALABAMA

Responding to the turn made in the iron market, **The Central Iron and Coal Co.**, operating a blast furnace at Holt, in Tuscaloosa County, has begun preparations to resume manufacture of pig iron. It will also put 40 of its 60 byproduct ovens in commission and reopen the Kellerman mines.

The White Coal & Iron Co., owned by Chicago capitalists, has filed trust deeds for record in DeKalb and Marshall counties covering several thousand acres of mineral lands to secure a bond issue of $1,500,000, which it is reported will be used in development work. W. L. Smith, of Gadsden, is the Alabama representative of the company.

ILLINOIS

The Spoon River Colliery Co. has increased its capital stock from $75,000 to $200,000.

The Illinois Coal and Coke Corporation, which now owns about 25,000 acres of coal land in Jefferson County, is planning for the beginning of work on the development of what is said will be the largest coal mine in the state. This mine will be one of four big units to be constructed by the corporation in developing the coal field which has been acquired in the vicinity of Waltonville. A tract of about 4,000 acres lying north of Waltonville will be the first unit developed. A. J. Nason, head of the company, is president of two other coal companies besides the Illinois Coal and Coke Corporation. They are the Nason Coal Co. and the Nokomis Coal Co.

The Hamilton-Lester Coal Co., Marion, has been organized to operate coal properties. The company is headed by C. F. Hamilton and W. S. Burkhart.

The Wilmington & Franklin Coal Co. of West Frankfort are contemplating development work, consisting of two shafts and two steel tipples.

William B. Jess, president of the Springfield District Coal Mining Co. and head of the Peabody interests around Springfield, has been made a vice-president of the Peabody Coal Co. Mr. Jess will retain his headquarters in Springfield.

The American Atomized Fuel Co. was sued recently by the Hooton Lumber Co. of Terre Haute, Ind. Payment of $372.13 and attachment was asked in the suit filed in Superior Court No. 2. Labor of a number of men were the main items in the account submitted by the plaintiff.

James E. Anderson, Farmington, has been named special investigator of mines and minerals by the governor. Mr. Anderson is a graduate of Edinburgh University in Scotland and is a mining engineer by profession. He succeeds **James Taylor** of Peoria.

KENTUCKY

Henry Crice and Wm. J. Moore have affirmed ownership of the **Square Deal Coal Co.**, Louisville.

The Dark Fork Coal Co., of Catlettsburg has amended its charter as held under the Kentucky laws so that an indebtedness of $100,000 can be incurred instead of the original $50,000 allowed.

Two suits have been filed against the **Four In One Coal Co.**, Louisville, which add to several already pending. One of these is by Eli H. Brown, for a balance of $3,500 due on a note of $11,000. The other is by the Ohio River Sand Co., for $360 for rental on property at Thirtieth and Broadway.

Dr. W. B. Jillson, Kentucky Geologist, has arranged to supply maps and materials, showing mineral products of the state, where located, etc., for exhibit in the home of the Kentucky Historical Society, for reference use.

The Secretary of State has granted the **Miami Mutual Coal Co.**, with headquarters at Willard, the right to do business in the state as an outside corporation.

Amended articles of incorporation have been filed by the **Kingston Coal Mining Co.**, Morton's Gap, giving names and addresses of incorporators, and extending the corporation's life to seventy-five years.

L. P. Young, formerly manager of the Scanlon Coal Co., Louisville, which was sold by his father T. L. Young, to Brown & Hannah, Shelby County, has been made Kentucky sales manager for the Harlan Coal Co., Louisville.

The Sunlight Mining Co. has been organized at Sunlight and has filed incorporation articles fixing the capital stock of the company at $300,000. The incorporators are T. W. Crow, J. B. Ramsey and J. B. Boddie.

The Eagle Coal Co. has moved its headquarters from Flat Rock to Barren Fork, in McCreary County.

The Pike-Floyd Coal Co., a subsidiary of the **Pittsburgh Coal Co.**, is making rapid development of its property at Betsy Layne, where a tract of about 12,000 acres is controlled. The erection of a permanent tipple has been started.

MARYLAND

The Miners' Coal Co., Steyer, recently organized with a capital of $500,000, is planning for the development of about 2,000 acres of coal property and will install a

plant to provide a capacity of about 500 tons daily. A list of equipment to be installed is being arranged, including electrical machinery, pumping apparatus, power plant equipment, etc. G. J. Lee is president, and Ira Mercer, treasurer and manager.

MINNESOTA

Dock companies at Duluth-Superior will co-operate to obtain a reduction of the present freight rates and thus decrease the cost of making deliveries of coal throughout the Northwest, according to a decision at a recent conference. Present freight rates were declared to be so high that a handicap is imposed upon the commercial and industrial condition of towns throughout the Northwest that are supplied with coal from the docks.

Charles Beuglet, head sales agent for the Northwestern Fuel Co., recently celebrated the thirtieth anniversary of his connection with the company. Letters of congratulation on his long service record were received by him from the main office of his company.

Docks of the **Northwestern Fuel Co.** and the **Carnegie Coal & Dock Co.** are at present the only ones in the Duluth-Superior harbor that are not jammed to the water's edge.

NEW YORK

George B. Johnson, a coal merchant doing business as **Johnson & Co.,** at 90 West St., New York City, pleaded guilty recently in the Federal Court to an indictment charging him with violation of the Interstate Commerce Act in relation to priority shipments of coal to tidewater. Judge William B. Sheppard accepted the plea of the defendant and imposed a fine of $1,500 which Johnson paid.

W. L. Bryant has been appointed receiver for the **Clearfield County Coal Co., Inc.,** of 24 State Street, New York City, by Judge Hough of the Federal Court for the Southern District of New York. A petition in bankruptcy was filed against the company on Sept. 13 by three creditors. It is stated the liabilities are about $100,000 and assets $5,000.

Robert T. Magee, formerly secretary of the Knickerbocker Fuel Co. and manager of the Philadelphia office of that concern, has resigned to become sales manager of the Madeira Hill Co., New England and New York territory. **J. E. DeBergh,** formerly assistant general manager of the Eyre Fuel Co., has resigned to take a position in the New York sales office of the Madeira Hill Co. **C. B. Merkel,** who has been connected with the Knickerbocker Fuel Co., is now in the sales office of the Madeira Hill Co., and will cover the New Jersey territory.

OHIO

Hamilton County coal contracts for the coming year have been awarded to the following Cincinnati firms, **Ulland Coal Co.,** Armory and Memorial Hall, smokeless $6.83; courthouse, bituminous steam $5.17, **Liggett Bros;** County Home, **Reliance Coal and Coke Co.** nut and slack $4.46.

James Albert Green, head of the Matthew Addy Co. of Cincinnati has returned from a six months hunting trip in Canada.

The United Collieries Co. with a capitalization of $100,000 has been incorporated under the laws of Kentucky and will maintain sales offices in Cincinnati with executive offices in Ashland, Ky. The officers are Ben Tate, president, Sidney D. Moss, vice-president, L. C. Byrne, secretary and R. D. Davis, treasurer.

The B. C. Tucker Coal Co. has been chartered with a capital of $100,000 to mine and sell coal. Incorporators are H. D. Palmer, J. S. Riggs, John A. Hadden, R. Froelich and John H. Kapp.

The Hocking Power Co., of Athens, which supplies a large number of mines with current, has announced a reduction in the rate effective Sept. 1. The reduction amounts to approximately 12 per cent.

T. S. Crockett, Columbus, president of the Leckie Coal Co., who was seriously ill for a number of months, has completely recovered and is now able to do his full share of work. For a time he was in a dangerous condition.

The Wolford Coal Co., Coshocton, has been chartered with a capital of $50,000 to mine coal in the Coshocton field. The incorporators are M. S. Wolford, W. Edgar Wolford, John Wolford, J. W. Thomson and Harry L. Balch.

Whitney Warner, vice-president of the Warner Collieries Co., headquarters Cleveland, spent a recent vacation in Massachusetts.

W. R. Woodford, president of the Rail & River Coal Co., Cleveland, spent a week at Charlevoix, Mich., where his family has been vacationing.

Application has been made by Warren B. Ferris for the appointment of a receiver for the **Mt. Cherry Coal Co.,** which operates a large mine at Frederickburg. The complainant alleges that he holds $9,000 worth of bonds of the company on which the interest has been defaulted.

The Foster-Kling Co., Cleveland, has been chartered with a capital of $150,000 to buy and sell coal among other things. The incorporators are David E. Green, J. A. Haddin, John H. Kopp, Herbert S. Palmer and R. Froelich.

Papers have been filed with the secretary of state increasing the capital of the **Minglewood Coal Co.,** Wooster, from $50,000 to $200,000.

PENNSYLVANIA

The Automatic Reclosing Circuit Breaker Co. of Columbus, O., is opening a Philadelphia office at 1613 Chestnut Street, with H. A. Van Dyke in charge.

The Lecoe & Shiffer Coal Co., Luzerne County, has decreased its capital stock from $40,000 to $20,000.

The Equitable Coal and Coke Co., Allegheny County, has increased the capital stock, $905,000 to $1,205,000.

A list of anthracite coal companies that have suspended operation because of the alleged effect of the enforcement of the Kohler mine cave law is being compiled by the chief of the Department of Mines.

A reduction of rates for coal mining insurance, affecting many hundreds of contracts for insurance of compensation liability, has been announced by the State Insurance Department. The reduction is one of the results of a recent statistical survey made by E. H. Downey and other Pennsylvania rate experts. The new rate for 1922 will be $2.25 for bituminous and $3.25 for anthracite mining. These reductions reflect the improvements made by inspections and scheduled rating of insured mines and the effect of payroll increases during the past five years. The general rates for compensation insurance will be announced during the next few weeks as the experience of the past two years is tabulated.

Six men are in the county jail charged with the theft of explosives from the West Leisenring plant of the **H. C. Frick Coke Co.,** after an investigation that entailed a period of weeks. Some weeks ago the plant was entered. Explosives, estimated to be worth $5,000, were taken and removed to various points.

C. Campbell Beck, son of Dr. W. F. Beck, of Altoona, has been elected vice-president and sales manager of the Jefferson Ridge Coal Co., with mines located in the Philipsburg district. He has been identified with the coal business in central Pennsylvania for a number of years.

The Haese Electric Co. Inc., of Punxsutawney, has opened an electric and repair shop at Tyrone, where it is prepared to take care of all armature winding and motor repair work for coal and industrial trade.

Caves recently occurred in North Scranton, ascribed to the operations of the Von Storch Colliery and it is said that they are the result of mining done after the Kohler Law came into operation Aug. 27. In fact the property owners declare the mining was done early in September. Mayor Alex T. Connell has agreed that if possible a suit would be started, with the City of Scranton as an intervenor. A test case is now pending in the courts of Luzerne County, but this action, brought by Harold J. Mahon, a Pittstown lawyer, against the Pennsylvania Coal Co., is regarded by some people as an amicable action and it is charged that it has been selected for its weakness rather than its strength. The petitions of the city and the Scranton Surface Protective Association, asking permission to intervene, were refused by the Luzerne County court. The Big bed, in which occurred this new cave that is to be the cause of this new test case, is 125 ft. deep. The general grievance committee of the Glen Alden Coal Co.'s men on Sept. 14 voted to name a committee of six to confer with W. W. Inglis, president of the Glen Alden Coal Co., in order to induce that corporation to start operations under the protection of the Fowler Act. The men suggest that the idleness of the collieries is really prompted by some other cause than an unwillingness to accept that Fowler Act.

TENNESSEE

The Knoxville offices of the **Harlan Coal Co.** has been moved from the Robbins Building to the Holston National Bank Building.

The Staub Coal Co., Tracy City, Tenn., is planning for the development of over 1,000 acres of coal property and will install a plant to provide for a daily production of approximately 500 tons. E. M. Jones, Chattanooga, consulting engineer, will be in charge of the installation. C. E. Wisner is president.

UTAH

Prominent members of the Utah Federation of Club Women were guests of the **Utah Fuel Co.,** at Castlegate, following the closing of a three-day convention of the Association, at Price. After luncheon they were taken through one of the large mines of the company.

The Lion Coal Co. of Ogden has been awarded a contract for 20,000 tons of egg by the Ogden Board of Education. The bid was $6.11 a ton. Twelve other dealers competed.

Damage estimated at between $15,000 and $20,000 was done by a fire in the storehouse of the **Pleasant Green Coal & Ice Co.** at Magna.

VIRGINIA

The Norfolk office of the **Imperial Coal Corporation,** under the management of J. J. Waldeck, was closed Oct. 1.

The Norfolk office of the **Matlack Coal and Iron Corporation,** of New York was closed Oct. 1. O. E. Wilkins has been in charge of this office.

The Newport News offices of the **Kinsley Steamship Co.,** engaged exclusively in the foreign coal trade, particularly to the Far East, has been closed, the business being transferred to the Norfolk office.

C. B. Koontz, for two years connected with the West Virginia Coal Co., has opened offices for himself as independent custom house broker, Norfolk.

The Norfolk & Western is taking advantage of the lull in dumpings to dredge the slips to coal pier No. 4, making the depth 36 feet.

WASHINGTON, D. C.

Chairman Kenyon of the **Senate Committe on Education and Labor** who with Senator Shortridge, of California, returned to Washington recently from an inspection of conditions in the West Virginia coal fields, stated that the committee had made a thorough investigation, and had "gotten into the bed rock of facts." The committee obtained knowledge of real facts in the West Virginia situation, the solution of which will be of value in applying a remedy to all industrial troubles. Senator Kenyon will lay the facts before an early meeting of the full committee, when decision will be reached as to further hearings.

The American Farm Bureau of Federation is compiling for the Congressional Commission which is investigating conditions and prices in agricultural and related industries, a report showing the prices paid by farmers from 1913 to 1921 on many articles, including coal.

L. W. Wallace, executive secretary of the Federated American Engineering Societies, addressed the Cleveland meeting of the National Association of Cost Accountants on the general subject of elimination of waste. He also addressed the Milwaukee section of the Society of Industrial Engineers on the same subject. He attended the hearing given by the licensing committee of American Engineering Council on Sept. 19 and 20. He returned to Washington Sept. 23.

WEST VIRGINIA

The Masteller Coal Co., of Kiser, has installed an Ironton Locomotive at the Hampshire Mine.

Colonel C. W. Watson, president of the Consolidation Coal Co., who recently returned from Europe, was a visitor in the Fairmont field about Sept. 10.

R. A. Johnson of the Crescent Fuel Co. of Fairmont spent a few days in Parkersburg during the early part of September.

C. W. Sandridge, who is interested in several operations in the neighborhood of Junior, was a recent visitor at Elkins.

One of the largest companies formed in West Virginia in recent months is authorized to deal in coal, timber and mineral lands and to construct roads, tramroads, etc. It will be known as the **Acmaraoln Corporation** and is capitalized at $5,000,000. Having an active part in the organization of this company were John M. Akers, Charleston; J. Elliott Hall and N. L. Hall of Columbus, Ohio, J. E. McClay and E. G. Anderson, also of Charleston.

A branch and service station has been established by the **Jeffrey Manufacturing Co.** of Columbus, in the Fairmont Hotel at Fairmont. Ernest Hutton, who represents the company in West Virginia, having charge of this service station. It is planned to keep on hand here sundry supplies and spare parts so that the company can supply the needs of its customers without delay. The new service station will be opened for business about Oct. 1.

The Seminole Gas Coal Co. has installed an Ironton Duplex Locomotive at the new mine at Haywood Junction.

The Electra Engineering and Construction Co. is a new concern which has opened an office in Wheeling. The company is doing a general engineering and contracting business, specializing in electrical equipment for coal mines.

The Brooke County Coal and Coke Co. of Wellsburg, capitalized at $450,000, with R. L. Ramsey, J. R. Elson, W. L. Wilkins, S. S. Hedges, Wellsburg and C. M. Warden of Beech Bottom, as incorporators, has been chartered by the secretary of state.

What is expected to be one of the largest independent coal operations in Monongalia County is being contemplated by the **P. V. and K. Coal Co.**, a Pennsylvania operating company which has just secured a large track of Sewickley coal along Indian Creek in the vicinity of the holdings of the New England Fuel and Transportation Co., and is planning to install mining equipment. The company has acquired 795 acres of what is considered a good grade of steam coal in the Sewickley vein, running an average of six feet to the vein. The consideration was $250,000.

The Deaker Hill Coal Co. of Akron, Ohio, was granted a certificate authorizing its withdrawal from business in this state.

A new railroad along the Little Kanawha River from Gilmer station to Glenville is a possibility and a $100,000 bond issue for the preliminary work will be voted on at an election authorized by the Gilmer County Court.

General Superintendent H. S. Gay, of the Gay Coal and Coke Co., operating in Logan County, has returned to his West Virginia headquarters after a business trip to Baltimore.

West Virginia coal mines were inspected recently by Colonel Ritson, of the British Department of Mines, who is interested in American methods of coal production. He also conferred with Bureau of Mines officials.

Harold P. Tompkins, manager of the Charleston office of the Elk Coal & Coke Co., with his brother, **R. W. Tompkins,** expects to leave for France early in October, to be gone three or four weeks.

Twenty-one persons were killed in mines of West Virginia during August, according to the monthly report issued by **R. M. Lambie,** chief of the state department of mines.

NOVA SCOTIA

Operators state that about 600,000 tons of Nova Scotia coal have been brought up the St. Lawrence this year, or 300,000 tons less than in the years before the war. Both the Grand Trunk and Canadian Pacific railways have practically stored sufficient coal to tide them over the winter months. **The Dominion Coal Co.** continues to bring up Nova Scotia coal in its steamers to supply bunkering requirements and to some extent to store coal at its discharging plants. It is anticipated that deliveries will slow down and that all Nova Scotia coal will be stored in Montreal by Oct. 15, a month earlier than usual.

Traffic News

On account of the great increase in coal business which passes through the yards at Centralia, Ill., the **Chicago, Burlington & Quincy R.R.** is spending approximately $500,000 in improvements on equipment at that place.

The Baltimore & Ohio has applied for the Interstate Commerce Commission for authority to purchase the **Indian Creek & Northern Ry.** in West Virginia. The company asks approval of the purchase by it of the entire capital stock of the Indian Creek company, amounting to 500 shares of the par value of $100 each. According to the application, the Baltimore & Ohio will pay $850,000 for the property.

The commission has authorized the **Minneapolis, St. Paul & Sault Sainte Marie Ry.,** to issue ten million dollars of securities to make delayed payments of current liabilities for fuel and other supplies.

A meeting attended by prominent members of the export trade, was recently held in New York for the purpose of organizing to seek lower freight rates on export coal. Mr. C. Andrade, Jr., will represent the coal men before the International Commerce Commission, which will be asked to allow a reduced rate. Without this, the American producers can hardly expect to compete, in the opinion of the men attending the meeting.

In the complaint of the **Northern West Virginia Coal Operators' Association,** the I. C. C. has denied the petition of the coal operators for modified findings. The commission originally found that the practices of the Director General of Railroads during the period from July 1919 to March 1920 in the distribution of coal cars to mines on the Monongahela Ry., and the Morgantown and Wheeling Ry. were prejudicial to operators of coal mines on those roads. The case has now been held open for further hearing as to the extent of damages suffered by the operators as the result of this prejudice.

In the complaint of the **Cameron Coal Co.,** the commission decides that public convenience and necessity do not require the Illinois Central to permit the Marion and Eastern R.R. to use its tracks from Marion, Ill., to the point where the C. B. & Q. crosses the Illinois Central overhead, two miles west of Marion. It holds that the Marion and Eastern is not a lateral branch line under Paragraph 9 of Section 1 of the Commerce Act.

Obituary

Charles A. Zettelmeyer, president of the Zettelmeyer Coal Co. and vice-president of the Drake Coal Co., both of Cleveland, died recently. Mr. Zettelmeyer was born in Rahway, N. J., 58 years ago and came to Cleveland at the age of 10 years. He started in the coal business 35 years ago and seven years later organized the Zettelmeyer company.

I. C. Muckermann, 55 years old, president of the Polar Wave Ice & Fuel Co. of St. Louis, died suddenly at his home in that city. He had been with this firm since his father organized it in 1903. For the past five years he was president.

Henry J. Kimman, since 1902 manager of the Cleveland plant of the Chicago Pneumatic Tool Co., died recently in Cleveland. He became associated with the Chicago Pneumatic Tool Co. in the consolidation of pneumatic tool interests in 1901, at which time he became manager of the Cleveland plant of the Chicago company and remained in active charge of the plant until his death.

Association Activities

Northern West Virginia Coal Operators' Association

A meeting of far-reaching importance to the coal industry of northern West Virginia was that of the directors of the association at Fairmont on Sept. 22, when among other subjects given consideration was that of the widening of the differential for which Ohio operators have applied. This question was discussed at considerable length and further steps were taken to defend the territory against the effort to zone out West Virginia coal from certain Western markets, as it is claimed will be the result of any increase in differentials. At the meeting of the directors reports as to trade conditions and mining conditions were submitted.

The meeting was held at the Fairmont Country Club, where a luncheon was served the eighteen coal operators and representatives of coal companies in attendance, the following being included:

A. Lisle White, Clarksburg, president of the association; C. H. Jenkins, Fairmont; J. A. Clark, Jr., Fairmont; E. L. Spraker, J. A. Jemkins, Clarksburg; A. Spates Brady, Elkins; William H. Green, Elkins; C. J. Ryan, Hepzibah; A. C. Beeson, Annabelle; J. P. Keeley, Clarksburg; F. P. Dunbar, Pittsburgh; N. M. Montgomery, Tunnelton; Thomas Robey, Fairmont; J. B. Gibson, Frank R. Lyon, Fairmont; W. Clark Dobbie, Fairmont; George S. Brackett, Fairmont, secretary of the association.

Publications Received

Coal-Mine Fatalities in the United States, 1920—Department of the Interior, Bureau of Mines. Technical Paper 288. Pp. 112; 6 x 9 in.; charts and tables. Includes coal mine statistics supplementing those published in Bulletin 115, and a list of permissible explosive, lamps and motors tested prior to Jan. 31, 1921.

Water-Gas Apparatus and the Use of Central District Coal as Generator Fuel—Department of the Interior, Bureau of Mines. Technical Paper 246. Pp. 28; 6 x 9 in.; illustrated; charts and tables. Prepared under a cooperative agreement with the Illinois State Geological Survey and the Engineering Experiment Station of the University of Illinois, through its department of mining engineering.

Petroleum Laws of All America—Department of the Interior, Bureau of Mines. Bulletin 206. Pp. 645; 6 x 9 in. This bulletin includes the petroleum laws of the United States, the several oil producing states, Canada, Mexico and the republics of Central and South America.

Trade Catalogs

Sullivan Dry Vacuum Pumps — Sullivan Machinery Co., Chicago, Ill. Bulletin 78-A. Pp. 12; 6 x 9 in.; illustrated. Describing the Sullivan W-A-16 steam driven and W-G-61 belt driven cylinder vacuum pumps.—Advertiser.

Polyphase Induction Motors, Continuous Rated — Allis-Chalmers Mfg. Co., Milwaukee, Wis. Bulletin 1118. Pp. 12; 8 x 10½ in.; illustrated. Describing the new lines of continuous rated Polyphase induction motors—Advertiser.

Coming Meetings

The National Industrial Traffic League will hold its annual meeting Nov. 9 and 10 at the Sherman Hotel, Chicago, Ill. Executive secretary, J. H. Beek, Conway Building, Chicago, Ill.

Kanawha Coal Operators' Association will meet on Oct. 20 at Charleston, West Va. Secretary, D. C. Kennedy, Kanawha Valley Bank Building, Charleston, West Va.

Harlan County Coal Operators' Association will hold its next meeting on or about Oct. 19 at Harlan, Ky. Secretary, E. R. Clayton, Harlan, Ky.

The American Mining Congress and National Exposition of Mines and Mining Equipment. The twenty-fourth annual convention on Oct. 17 to 22 at the Coliseum, Chicago, Ill. Assistant secretary, John T. Burns, Congress Hotel, Chicago, Ill.

The Coal Mining Institute of America will hold its annual meeting at Pittsburgh, Pa., Dec. 7, 8 and 9. Secretary H. D. Mason, Jr., Chamber of Commerce Bldg., Pittsburgh, Pa.

An Industrial Relations Conference for all industries in the State of Pennsylvania has been arranged for October 24 to 27 at Harrisburg, Pa., by the Commissioner of Labor and Industry, C. D. Connelly.

The sixth annual convention of the **National Association of Purchasing Agents** will be held Oct. 10-13 at Indianapolis, Ind.

American Gas Association. Annual convention Nov. 7 to 12 at Congress and Auditorium Hotels, Chicago, Ill. Secretary, O. H. Fogg, 130 E. 15th St., New York City.